

Service Manual

PIONEER®
The Art of Entertainment

DEH-P945R/EW



ORDER NO.
CRT2207

MULTI-CD/MD/DAB CONTROL DSP HIGH POWER CD PLAYER WITH RDS TUNER

DEH-P945R

EW

MULTI-CD/MD/DAB CONTROL DSP CD PLAYER WITH RDS TUNER

DEX-P99R

EW

COMPACT
disc
DIGITAL AUDIO

- See the separate manual CX-680(CRT2216) for the CD mechanism description, disassembly and circuit description.
- The CD mechanism employed in this model is one of H1 series.

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● CD Player Service Precautions

1. For pickup unit(CXX1290) handling, please refer to "Disassembly"(CX-680 Service Manual CRT2216).
During replacement, handling precautions shall be taken to prevent an electrostatic discharge(protection by a short pin).
2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.
3. Please checking the grating after changing the service pickup unit(see page 81).

1. SAFETY INFORMATION

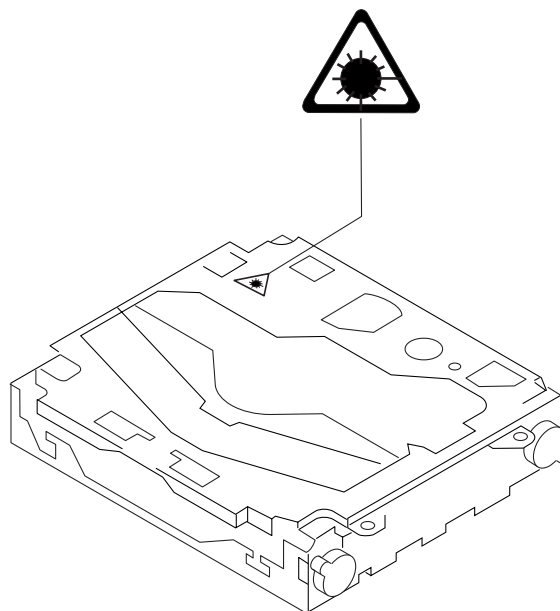
This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

1. Safety Precautions for those who Service this Unit.

- When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.

Caution:

1. During repair or tests, minimum distance of 13cm from the focus lens must be kept.
 2. During repair or tests, do not view laser beam for 10 seconds or longer.
2. A "CLASS 1 LASER PRODUCT" label is affixed to the rear of the player.
 3. The triangular label is attached to the mechanism unit frame.

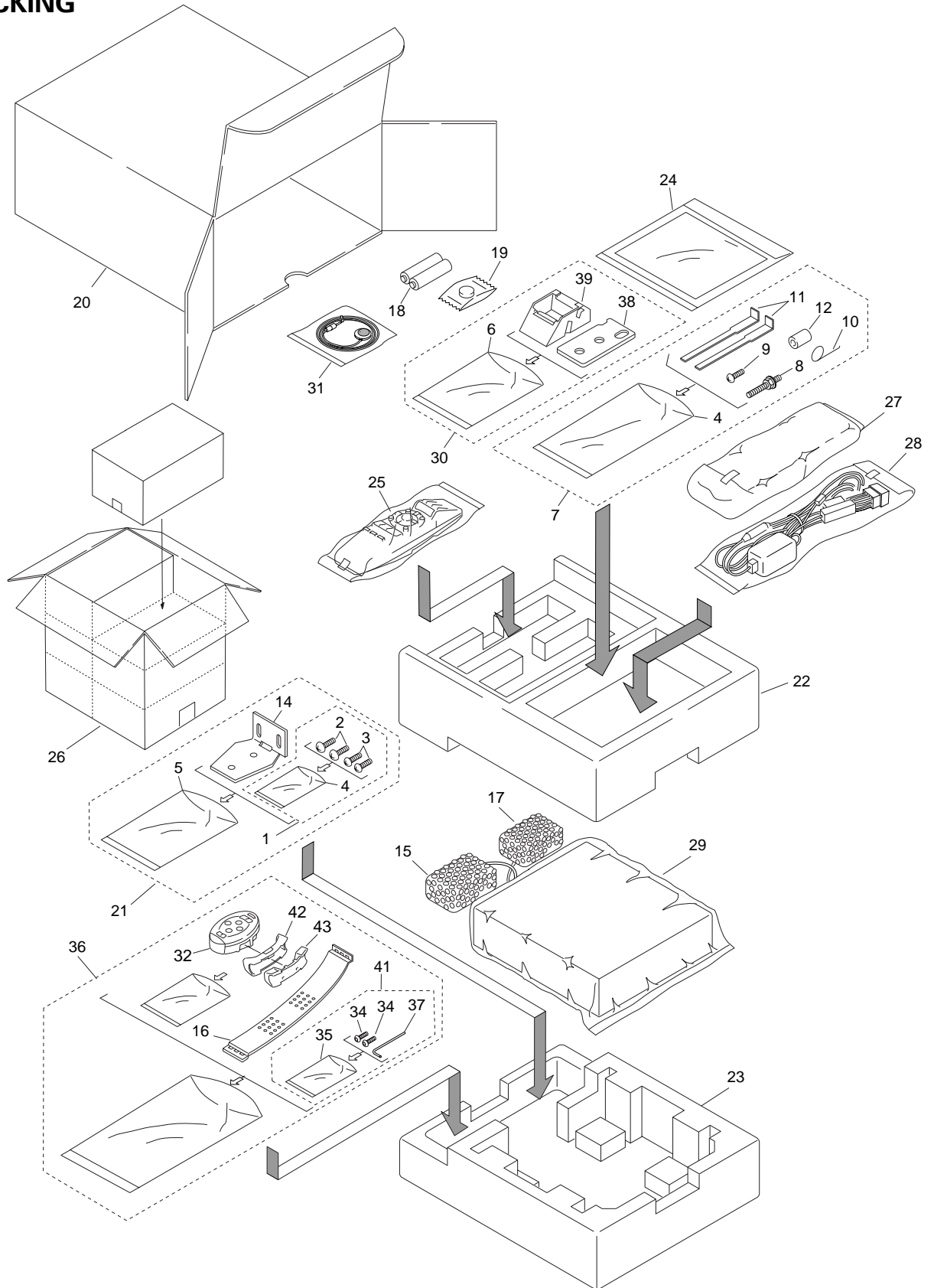


4. Specifications of Laser Diode

Specifications of laser radiation fields to which human access is possible during service.
Wavelength = 800 nanometers

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING



NOTE:

- Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ∇ mark on the product are used for disassembly.

● PACKING SECTION PARTS LIST

(1) PARTS LIST

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Screw Assy	CZE3198		24-3	Owner's Manual	CRD2729
	2	Screw	BNC40P120FZK		24-4	Installation Manual	CRD2655
	3	Screw	BPZ30P100FZK		24-5	Installation Manual	CRD2656
*	4	Polyethylene Bag	CEG-127		24-6	Installation Manual	CRD2657
*	5	Polyethylene Bag	CZE3201		24-7	Polyethylene Bag	CEG1116
	6	Polyethylene Bag	CZE3188		25	Remote Control Assy	CXB2660
*	7	Accessory Assy	CEA2429	25-1	Polyethylene Bag	CEG1011	
	8	Screw	CBA1002	26	Contain Box	CHD2637	
	9	Screw	CBA1120	27	Case Assy	CXA7194	
	10	Spring	CBH-865	28	Cord Assy	See Contrast table(2)	
	11	Handle	CNC5395	29	Cover	CEG1088	
	12	Bush	CNV1917	30	Base Assy	CEA2426	
*	13	Polyethylene Bag	E36-615	31	Microphone Assy	CPM1022	
	14	Bracket	CZN6467	32	Remote Control Assy	CZX3218	
	15	Air Cushioned Bag	CEG1080	33	.....	
	16	Belt	CZN6416	*	34	Screw	RMZ30H060FBK
	17	Air Cushioned Bag	CEG1192	*	35	Polyethylene Bag	CEG-127
	18	Battery	CEX1006		36	Remote Control Assy	CXB2636
	19	Battery	CEX1030	*	37	Hexagonal Wrench	CZE3176
	20	Carton	See Contrast table(2)		38	Sheet	CZA3371
	21	Bracket Assy	CEA2346		39	Base	CNS5031
	22	Protector	CHP2089	40	.....	
	23	Protector	CHP2090	41	Screw Assy	CZE3169	
	24-1	Owner's Manual	CRD2727	42	Holder Assy	CZX3172	
	24-2	Owner's Manual	CRD2728	43	Holder Assy	CZX3173	

● **Owner's Manual**

Model	Part No.	Language
DEH-P945R/EW	CRD2652	English, Spanish
	CRD2653	German, French
	CRD2654	Italian, Dutch
DEX-P99R/EW	CRD2727	English, Spanish
	CRD2728	German, French
	CRD2729	Italian, Dutch

● **Installation Manual**

Model	Part No.	Language
DEH-P945R/EW, DEX-P99R/EW	CRD2655	English, Spanish
	CRD2656	German, French
	CRD2657	Italian, Dutch

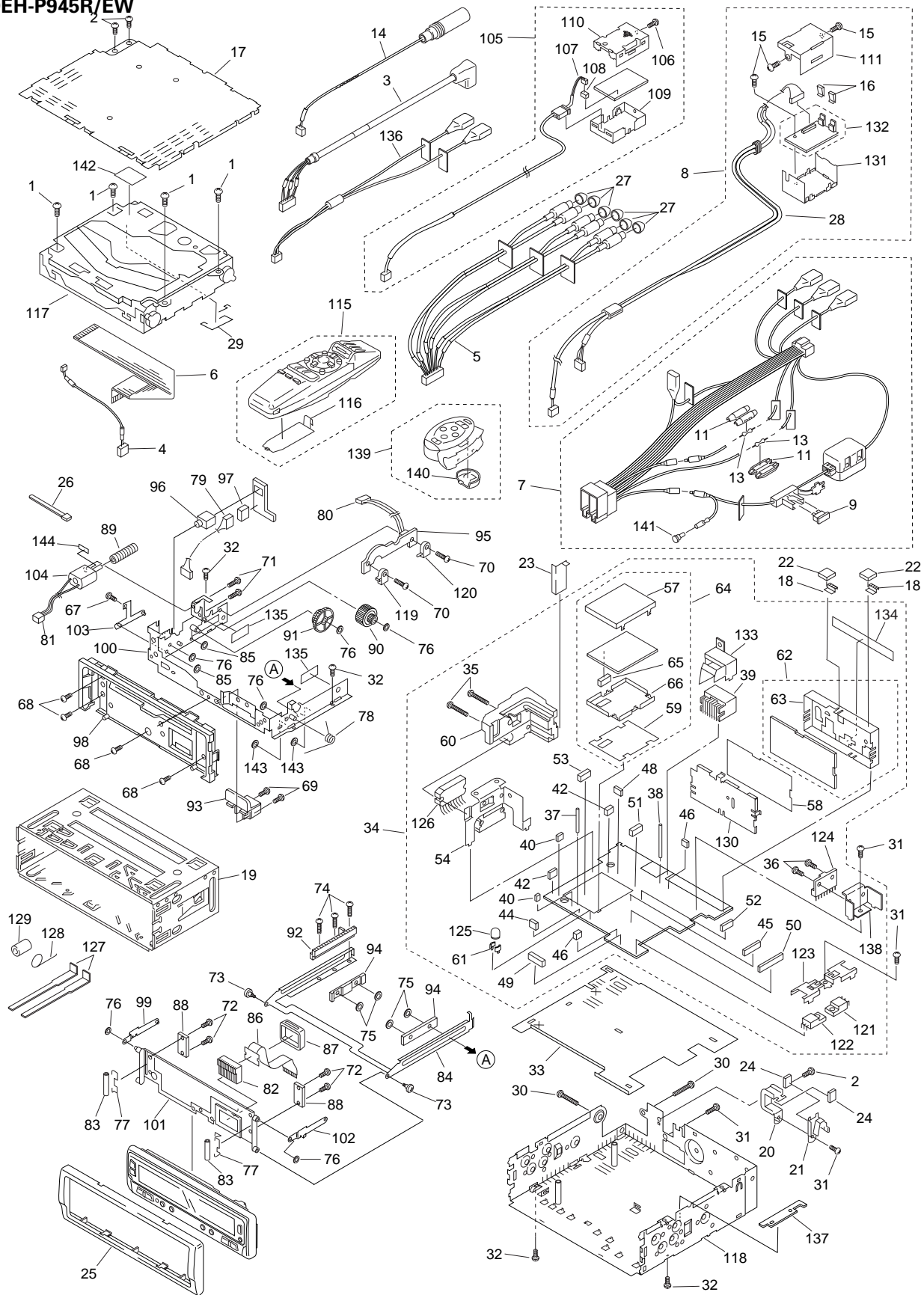
(2) CONTRAST TABLE

DEH-P945R/EW and DEX-P99R/EW are constructed same except for the following:

Mark No.	Symbol and Description	Part No.	
		DEH-P945R/EW	DEX-P99R/EW
20	Carton	CHG3534	CHG3533
28	Cord Assy	CDE5730	CDE5657

2.2 EXTERIOR (1)

● DEH-P945R/EW

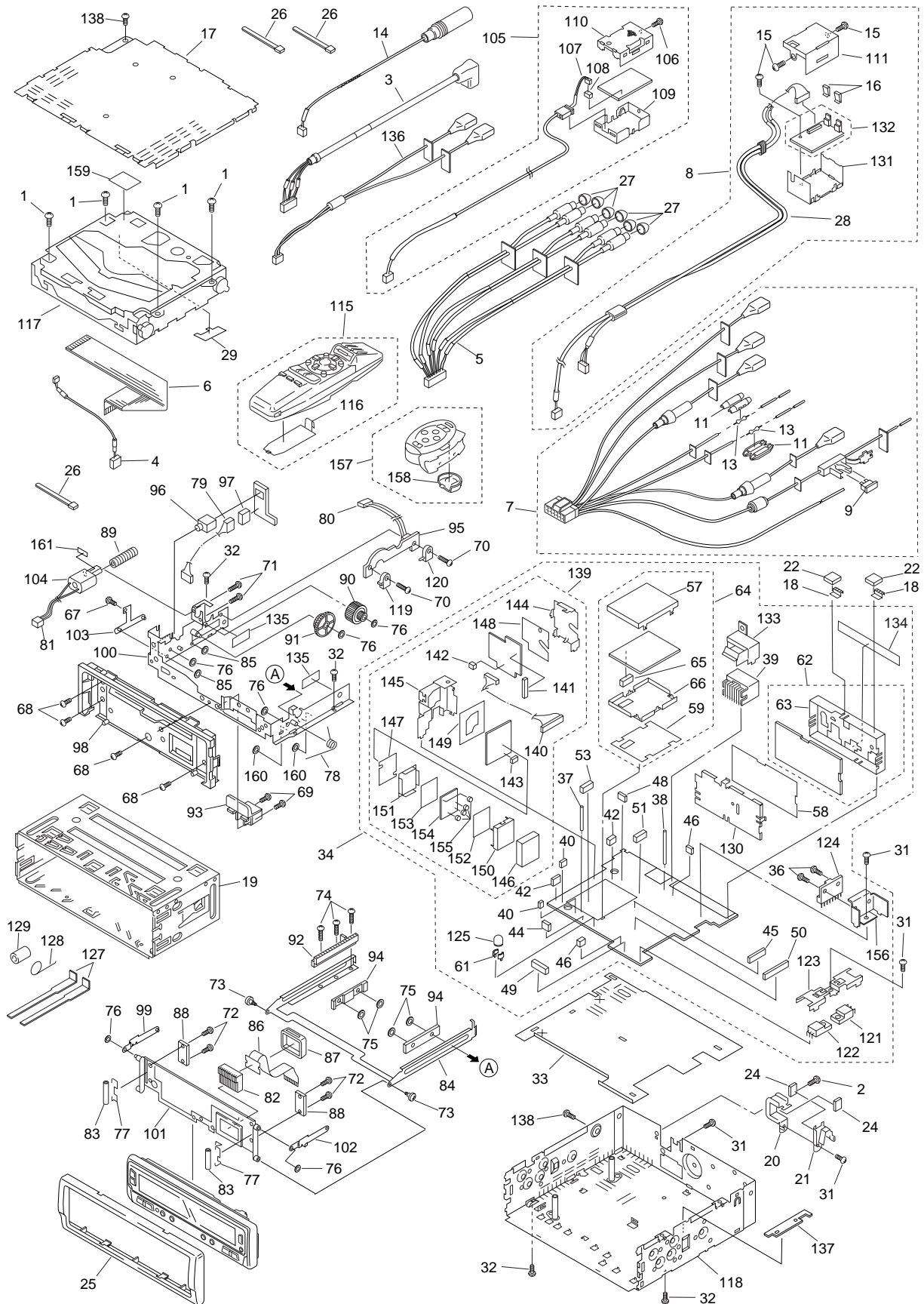


● EXTERIOR (1) SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BSZ26P050FMC	46	Plug(CN451,804)	CKS1222
2	Screw	BSZ30P055FMC	47	.....
3	Cord Assy	CDE5785	48	Plug(CN803)	CKS1225
4	Cord	CDE5536	49	Connector(CN801)	CKS1564
5	Cord Assy	CDE5625	50	Connector(CN671)	CKS2779
6	Connector	CDE5543	51	Connector(CN681)	CKS3583
7	Cord Assy	CDE5730	52	Connector(CN231)	CKS3592
8	Inverter Assy	MWM9028	53	Connector(CN222)	CKS3781
9	Fuse	CEK1136	54	Holder	CNC7554
10	.....		55	Holder	CNC7557
11	Cap	CNS1472	56	Holder	CNC7559
12	Choke Coil	CTH1127	57	Case	CNC8014
13	Resistor	RS1/2PMF102J	58	Insulator	CNM4684
14	Antenna Cable	CDH1115	59	Insulator	CNM5626
15	Screw	BSZ26P050FMC	60	Heat Sink	CNR1468
16	Clip	MBK9001	61	Holder	CNV1906
17	Case	CNB2278	62	FM/AM Tuner Unit	CWE1416
18	Earth Terminal	CNC7358	63	Holder	CNC6555
19	Holder	CNC6798	64	DSP Unit	CWX2214
20	Holder	CNC7566	65	Connector(CN3001)	CKS3782
21	Holder	CNC7753	66	Case	CNC8015
22	Spacer	CNM4913	67	Screw	BMZ20P030FMC
23	Spacer	CNM5793	68	Screw	BMZ20P030FZK
24	Cushion	CNM5811	69	Screw	BPZ20P060FMC
25	Panel	CNS4553	70	Screw	CBA1060
* 26	Lock Tie	CNV-754	71	Screw	CBA1061
27	Cap	CNV2680	72	Screw	CBA1082
28	Cord	MDE9012	73	Screw	CBA1430
29	Spacer	CNM5997	74	Screw	CBA1454
30	Screw	BMZ30P180FMC	75	Washer	CBF1038
31	Screw	BSZ26P080FMC	76	Washer	CBF1039
32	Screw	CBA1447	77	Spring	CBH2063
33	Insulator	CNM5627	78	Spring	CBH2086
34	Tuner Amp Unit	CWM5696	79	Cord	CDE5587
35	Screw	BMZ26P200FMC	80	Cord	CDE5596
36	Screw	BSZ30P055FMC	81	Cord	CDE5597
37	Clamper	CEF1008	82	Socket	CKS2497
38	Clamper	CEF1009	83	Roller	CLA3458
39	Plug(CN901)	CKM1278	84	Frame	CNC7548
40	Plug(CN221,851)	CKS-783	85	Spacer	CNM5808
41	.....		86	PCB	CNP5065
42	Plug(CN141,852)	CKS-784	87	Cover	CNS4841
43	.....		88	Holder	CNV2141
44	Plug(CN131)	CKS-786	89	Gear	CNV5271
45	Plug(CN101)	CKS1044	90	Torque Limiter Unit	CNV5272

Mark No.	Description	Part No.	Mark No.	Description	Part No.
91	Gear	CNV5273	116	Battery Cover	CNS5032
92	Rack	CNV5274	117	CD Mechanism Module(H1)	CXK5101
93	Lighting Conductor	CNV5276	118	Chassis Unit	CXB2229
94	Guide	CNV5356	119	Switch(S951)	CSN1012
95	Gathering PCB	CNX2961	120	Switch(S952)	CSN1022
96	Mini Jack(CN4602)	CKN1015	121	IC(IC871)	NJM78M05FA
97	Plug(CN4601)	CKS-786	122	Trangistor(Q992)	2SD2396
98	Panel Unit	CXB2212	123	Holder	CNC8013
99	Arm Unit	CXB2215	124	IC(IC941)	PA2024
100	Frame Unit	CXB2216	125	Lamp(IL801)	CEL1359
101	Holder Unit	CXB2217	126	IC(IC301)	TDA7386
102	Arm Unit	CXB2218	127	Handle	CNC5395
103	Bracket Unit	CXB2598	128	Spring	CBH-865
104	Motor	CXM1085	129	Bush	CNV1917
105	ASL Unit	CWX2216	130	Holder	CNC8021
106	Screw	BSZ30P055FMC	131	Holder	MNC9009
107	Cord	CDE5763	132	Inverter Unit	MWM9026
108	Plug(CN4501)	CKS-784	133	Holder	CNC8011
109	Case	CNB2299	134	Spacer	CNM5996
110	Case	CNB2300	135	Spacer	CNM5988
111	Holder	MNC9008	136	Cord Assy	CDE5539
112	Holder Assy	CZX3172	137	Guide Unit	CXB3234
113	Holder Assy	CZX3173	138	Holder	CNC8012
114	Cover	CZN6410	139	Remote Control Assy	CZX3218
115	Remote Control Assy	CXB2660	140	Cover	CZN6410
			141	Terminal Cover	CKX-003
			142	Cushion	CNM6065
			143	Spacer	CNM6069
			143	Spacer	CNM6093

● DEX-P99R/EW

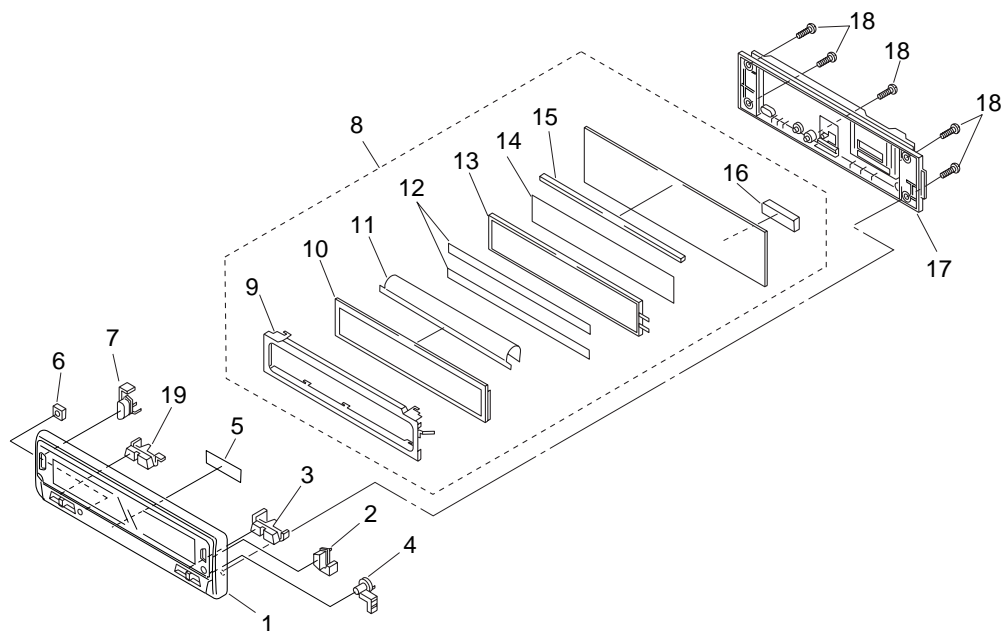


● EXTERIOR (1) SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BSZ26P050FMC	46	Plug(CN451,804)	CKS1222
2	Screw	BSZ30P055FMC	47	.....
3	Cord Assy	CDE5785	48	Plug(CN803)	CKS1225
4	Cord	CDE5536	49	Connector(CN801)	CKS1564
5	Cord Assy	CDE5545	50	Connector(CN671)	CKS2779
6	Connector	CDE5543	51	Connector(CN681)	CKS3583
7	Cord Assy	CDE5657	52	.....
8	Inverter Assy	MWM9028	53	Connector(CN222)	CKS3781
9	Fuse	CEK1001	54	.....
10	Cover	CKX-003	55	Holder	CNC7557
11	Cap	CNS1472	56	Holder	CNC7559
12	Choke Coil	CTH1127	57	Case	CNC8014
13	Resistor	RS1/2PMF102J	58	Insulator	CNM4684
14	Antenna Cable	CDH1115	59	Insulator	CNM5626
15	Screw	BSZ26P050FMC	60	.....
16	Clip	MBK9001	61	Holder	CNV1906
17	Case	CNB2279	62	FM/AM Tuner Unit	CWE1416
18	Earth Terminal	CNC7358	63	Holder	CNC6555
19	Holder	CNC6798	64	DSP Unit	CWX2214
20	Holder	CNC7566	65	Connector(CN3001)	CKS3782
21	Holder	CNC7753	66	Case	CNC8015
22	Spacer	CNM4913	67	Screw	BMZ20P030FMC
23	.....		68	Screw	BMZ20P030FZK
24	Cushion	CNM6062	69	Screw	BPZ20P060FMC
25	Panel	CNS4553	70	Screw	CBA1060
* 26	Lock Tie	CNV-754	71	Screw	CBA1061
27	Cap	CNV2680	72	Screw	CBA1082
28	Cord	MDE9012	73	Screw	CBA1430
29	Spacer	CNM5997	74	Screw	CBA1454
30	.....		75	Washer	CBF1038
31	Screw	BSZ26P080FMC	76	Washer	CBF1039
32	Screw	CBA1447	77	Spring	CBH2063
33	Insulator	CNM5627	78	Spring	CBH2086
34	Tuner Amp Unit	CWM5695	79	Cord	CDE5587
35	.....		80	Cord	CDE5596
36	Screw	BSZ30P055FMC	81	Cord	CDE5597
37	Clamper	CEF1008	82	Socket	CKS2497
38	Clamper	CEF1009	83	Roller	CLA3458
39	Plug(CN901)	CKM1278	84	Frame	CNC7548
40	Plug(CN221,851)	CKS-783	85	Spacer	CNM5808
41	.....		86	PCB	CNP5065
42	Plug(CN141,852)	CKS-784	87	Cover	CNS4841
43	.....		88	Holder	CNV2141
44	Plug(CN131)	CKS-786	89	Gear	CNV5271
45	Plug(CN101)	CKS1044	90	Torque Limiter Unit	CNV5272

Mark No.	Description	Part No.	Mark No.	Description	Part No.
91	Gear	CNV5273	126	*****	
92	Rack	CNV5274	127	Handle	CNC5395
93	Lighting Conductor	CNV5276	128	Spring	CBH-865
94	Guide	CNV5356	129	Bush	CNV1917
95	Gathering PCB	CNX2961	130	Holder	CNC8021
96	Mini Jack(CN4602)	CKN1015	131	Holder	MNC9009
97	Plug(CN4601)	CKS-786	132	Inverter Unit	MWM9026
98	Panel Unit	CXB2212	133	Holder	CNC8011
99	Arm Unit	CXB2215	134	Spacer	CNM5996
100	Frame Unit	CXB2216	135	Spacer	CNM5988
101	Holder Unit	CXB2217	136	Cord Assy	CDE5539
102	Arm Unit	CXB2218	137	Guide Unit	CXB3234
103	Bracket Unit	CXB2598	138	Screw	BMZ30P040FMC
104	Motor	CXM1085	139	High Out Unit	CWX2215
105	ASL Unit	CWX2216	140	Cord Assy	CDE5555
106	Screw	BSZ30P055FMC	141	Plug(CN4153)	CKS1045
107	Cord	CDE5763	142	Plug(CN4152)	CKS1613
108	Plug(CN4501)	CKS-784	143	Plug(CN4051)	CKS1614
109	Case	CNB2299	144	Holder	CNC8009
110	Case	CNB2300	145	Holder	CNC7556
111	Holder	MNC9008	146	Shield	CNC8010
112	Holder Assy	CZX3172	147	Insulator	CNM4760
113	Holder Assy	CZX3173	148	Insulator	CNM5650
114	Cover	CZN6410	149	Insulator	CNM5651
115	Remote Control Assy	CXB2660	150	Shield	CNC6224
116	Battery Cover	CNS5032	151	Shield	CNC6274
117	CD Mechanism Module(H1)	CXK5101	152	Insulator	CNM4610
118	Chassis Unit	CXB2228	153	Insulator	CNM4814
119	Switch(S951)	CSN1012	154	D/D Converter Unit	CWM4538
120	Switch(S952)	CSN1022	155	Terminal (CN4001,4002,4003,4004)	CKF1023
121	IC(IC871)	NJM78M05FA	156	Holder	CNC8012
122	Trangistor(Q992)	2SD2396	157	Remote Control Assy	CZX3218
123	Holder	CNC8013	158	Cover	CZN6410
124	IC(IC941)	PA2024	159	Cushion	CNM6065
125	Lamp(IL801)	CEL1359	160	Spacer	CNM6069
			161	Spacer	CNM6093

2.3 EXTERIOR (2)



● EXTERIOR (2) SECTION PARTS LIST

(1) PARTS LIST

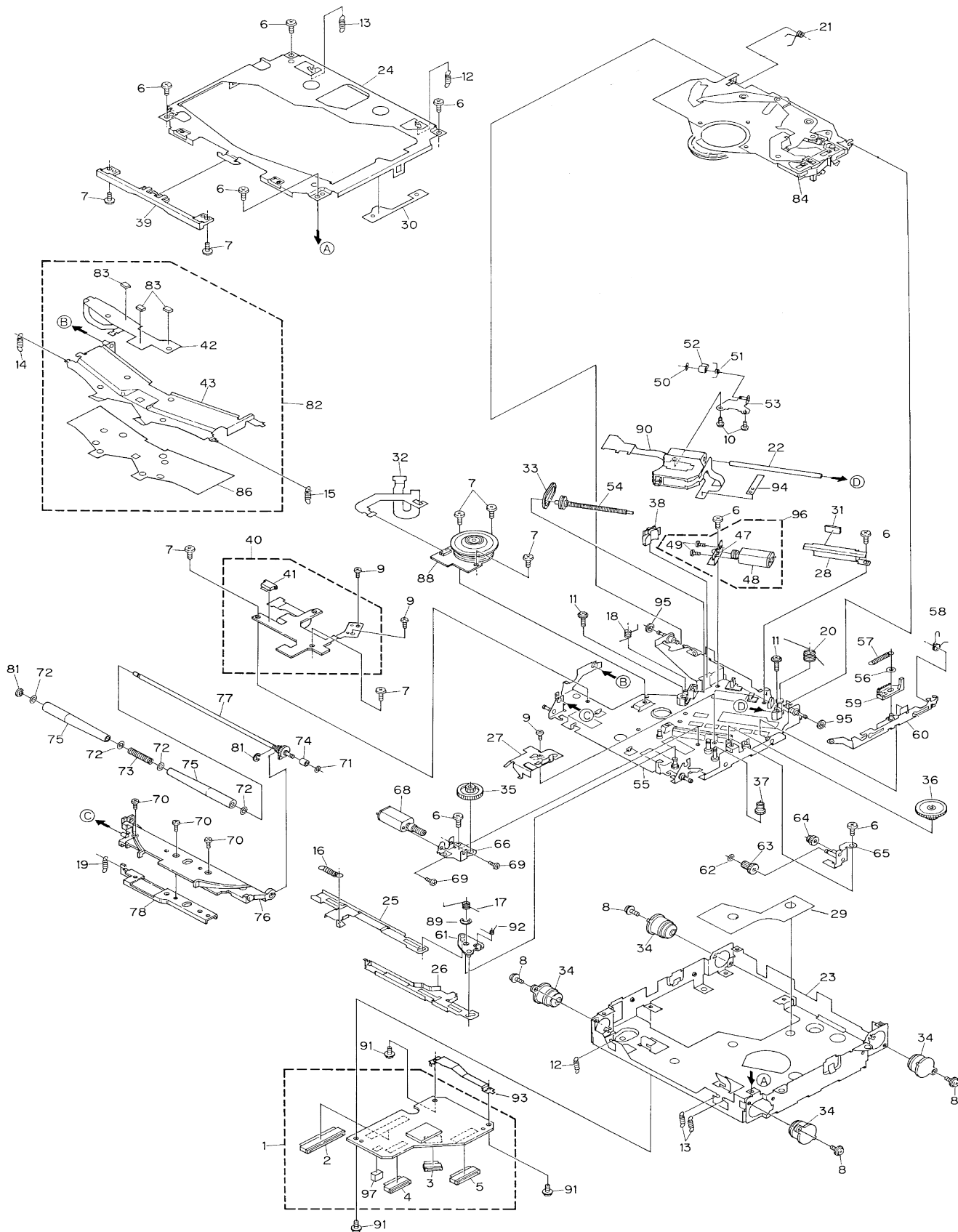
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Grille Unit	See Contrast table(2)	11	PCB	CNP5063
2	Button	CAC5488	12	Spacer	CNM5894
3	Button	CAC5494	13	EL(EL1901)	CEL1580
4	Button	CAC5504	14	Spacer	CNM5623
5	Spacer	CNM6021	15	Spacer	CNM5622
6	Spacer	CNM5910	16	Plug(CN1901)	CKS2496
7	Button	CAC5486	17	Cover Unit	CXB2208
8	Keyboard Unit	See Contrast table(2)	18	Screw	BPZ20P080FZK
9	Holder	CNC7547	19	Button	CAC5491
* 10	LCD(LCD1901)	See Contrast table(2)			

(2) CONTRAST TABLE

DEH-P945R/EW and DEX-P99R/EW are constructed same except for the following:

Mark No.	Symbol and Description	Part No.	
		DEH-P945R/EW	DEX-P99R/EW
1	Grille Unit	CXB2203	CXB2202
8	Keyboard Unit	CWM5688	CWM5687
* 10	LCD(LCD1901)	CAW1471	CAW1493

2.4 CD MECHANISM MODULE

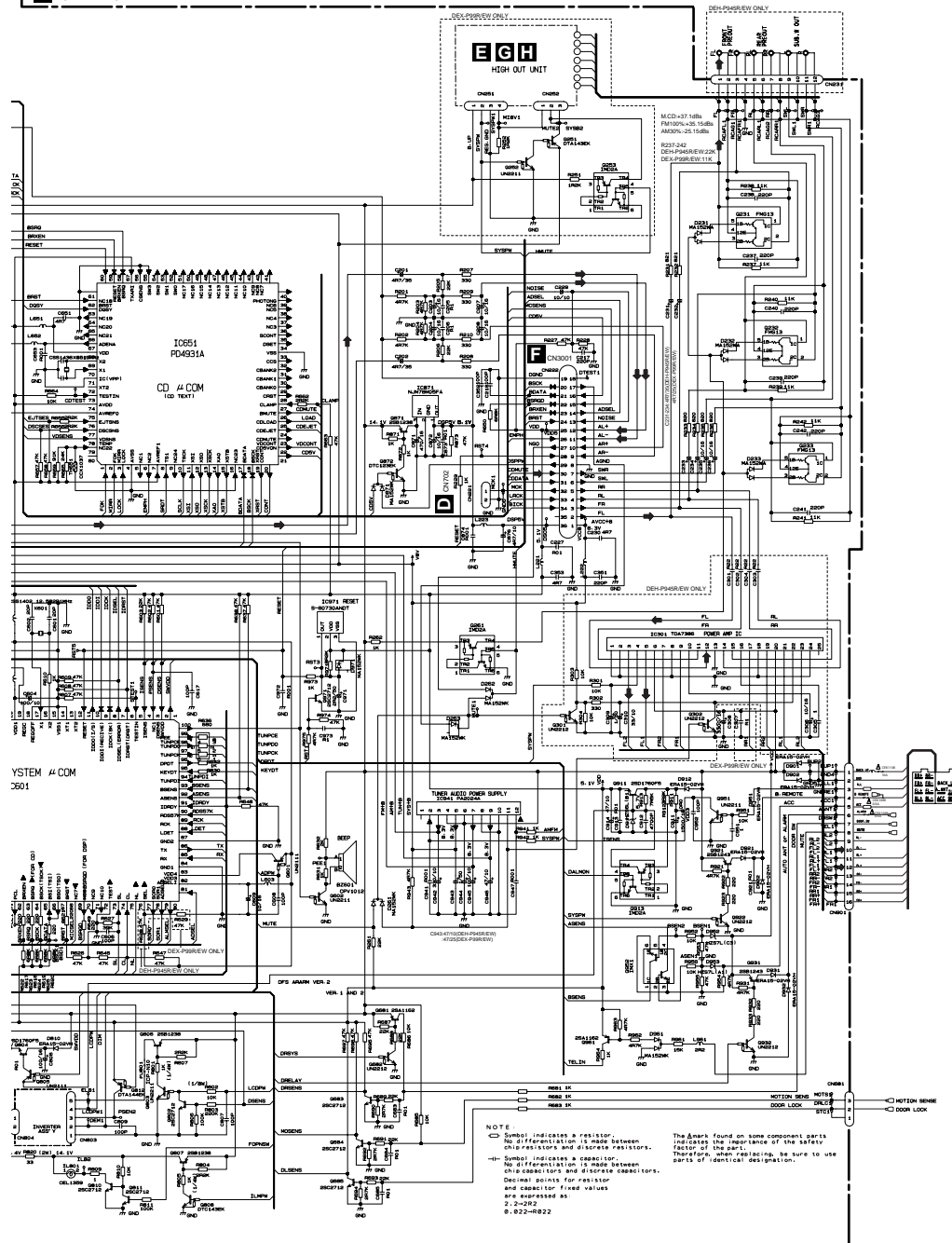


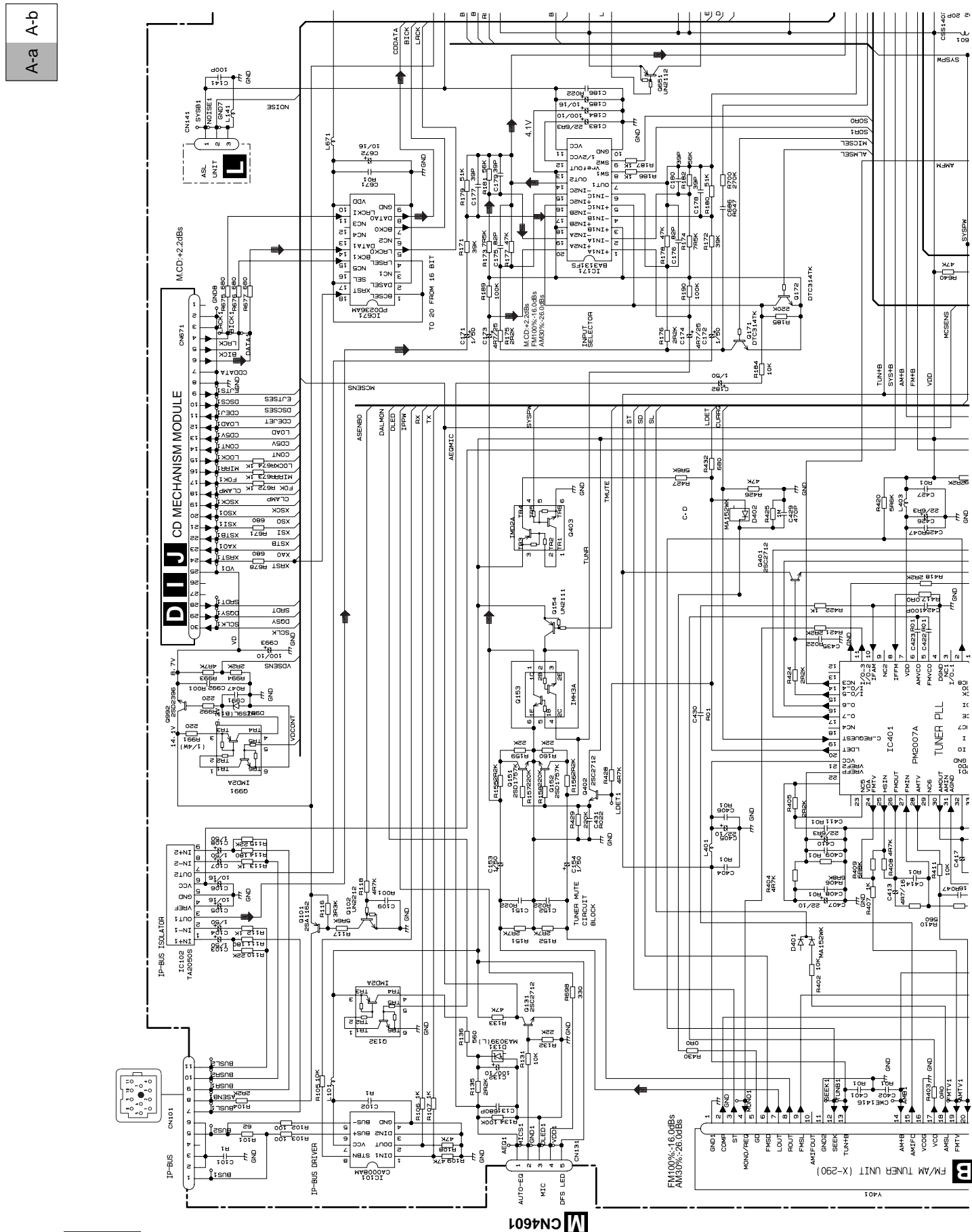
● CD MECHANISM MODULE SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Control Unit	CWX2166	51	Spring	CBH2039
2	Connector(CN701)	CKS1968	52	Lack	CNV5471
3	Connector(CN802)	CKS3477	53	Bracket Unit	CXB1674
4	Connector(CN801)	CKS3481	54	Screw Unit	CXB1676
5	Connector(CN101)	CKS3486	55	Chassis Unit	CXB3042
6	Screw	BMZ20P025FMC	56	Washer	CBF1038
7	Screw	CBA1037	57	Spring	CBH2035
8	Screw	CBA1296	58	Spring	CBH2036
9	Screw	CBA1340	59	Lever	CNV5078
10	Screw	CBA1362	60	Lever Unit	CXB3207
11	Screw	CBA1440	61	Arm Unit	CXB1680
12	Spring	CBH2029	62	Washer	CBF1038
13	Spring	CBH2030	63	Gear	CNV5083
14	Spring	CBH2031	64	Gear	CNV5084
15	Spring	CBH2032	65	Bracket Unit	CXB1682
16	Spring	CBH2033	66	Bracket	CNC7292
17	Spring	CBH2207	67	.....
18	Spring	CBH2040	68	Motor Unit(M2)	CXB1684
19	Spring	CBH2041	69	Screw	JFZ14P020FNI
20	Spring	CBH2042	70	Screw	CBA1451
21	Spring	CBH2052	71	Washer	CBF1037
22	Shaft	CLA3232	72	Washer	CBF1060
23	Frame	CNC7285	73	Spring	CBH2170
24	Frame	CNC7286	74	Roller	CLA3222
25	Lever	CNC7288	75	Roller	CNV3412
26	Lever	CNC7289	76	Arm	CNV5075
27	Cover	CNC7294	77	Gear Unit	CXB1686
28	Cover	CNC7304	78	Bracket Unit	CXB2627
29	Sheet	CNM5401	79	.....
30	Sheet	CNM5402	80	.....
31	Sheet	CNM5814	81	Washer	YE20FUC
32	PCB	CNP4854	82	Guide Arm Assy	CXB1688
33	Belt	CNT1082	83	Photo-transistor(P1-3)	CPT-230S-X
34	Damper	CNV4984	84	Clamp Arm Assy	CXB3137
35	Gear	CNV5080	85	.....
36	Gear	CNV5081	* 86	Sheet	CNM5398
37	Gear	CNV5082	87	.....
38	Holder	CNV5098	88	Motor(M3)	CXM1129
39	Guide	CNV5352	89	Washer	YE25FUC
40	Mechanism FPC Unit	CWX2191	90	Pickup Unit(Service)(P8)	CXX1290
41	Connector	CKS3767	91	Screw	IMS20P035FMC
* 42	PCB	CNP4852	92	Spring	CBH2206
* 43	Arm	CNC7287	93	Bracket	CNC7977
44	.....		94	Sheet	CNM6039
45	.....		95	Sheet	CNM6055
46	.....		96	CRG Motor Assy(M1)	CXB1670
47	Bracket	CNC7300	97	Connector(CN702)	CKS2191
48	Motor Unit	CXB1671			
49	Screw	JFZ14P020FNI			
50	Washer	CBF1037			

A-b

A TUNER AMP UNIT





A-a A-b

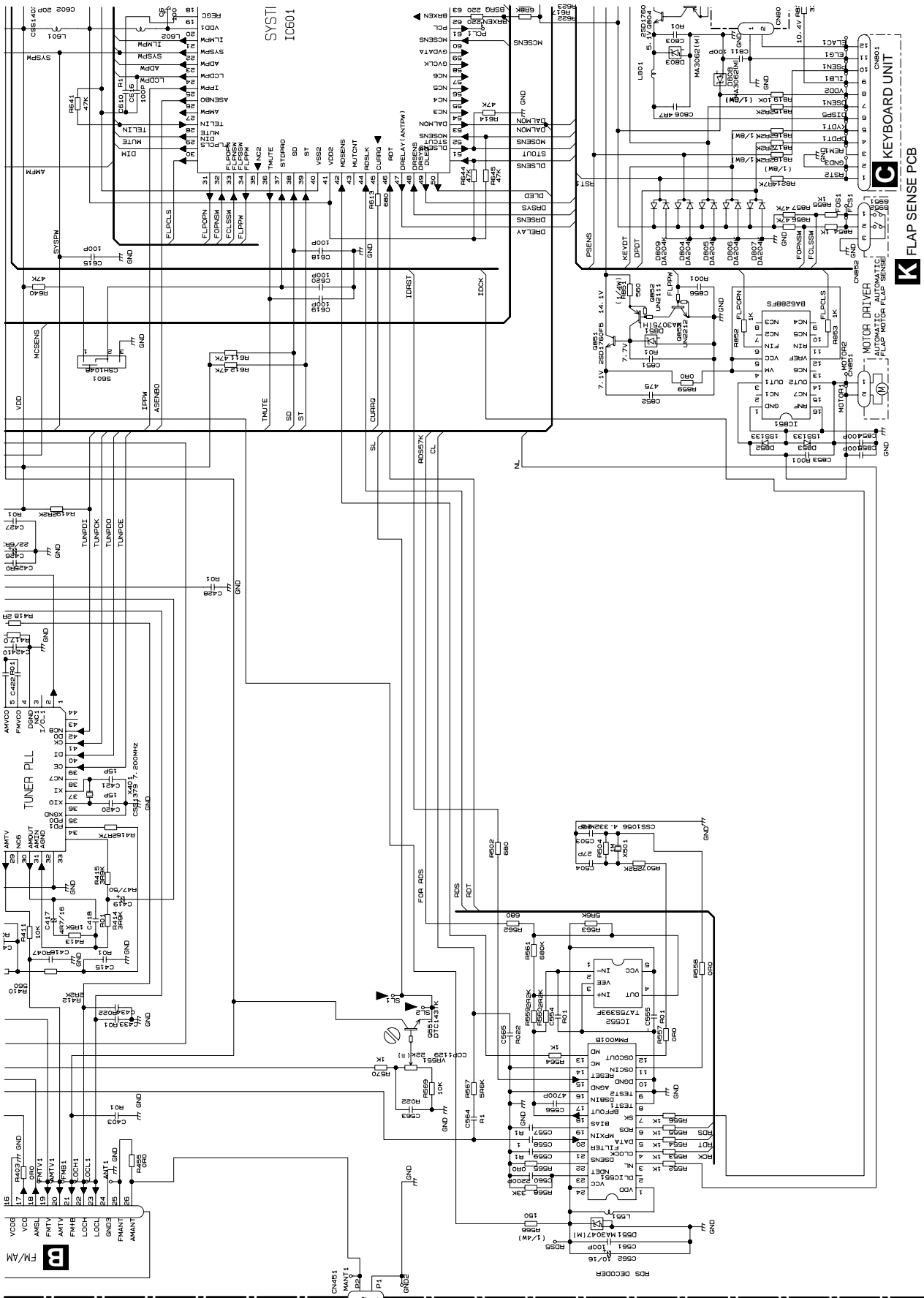
A

B

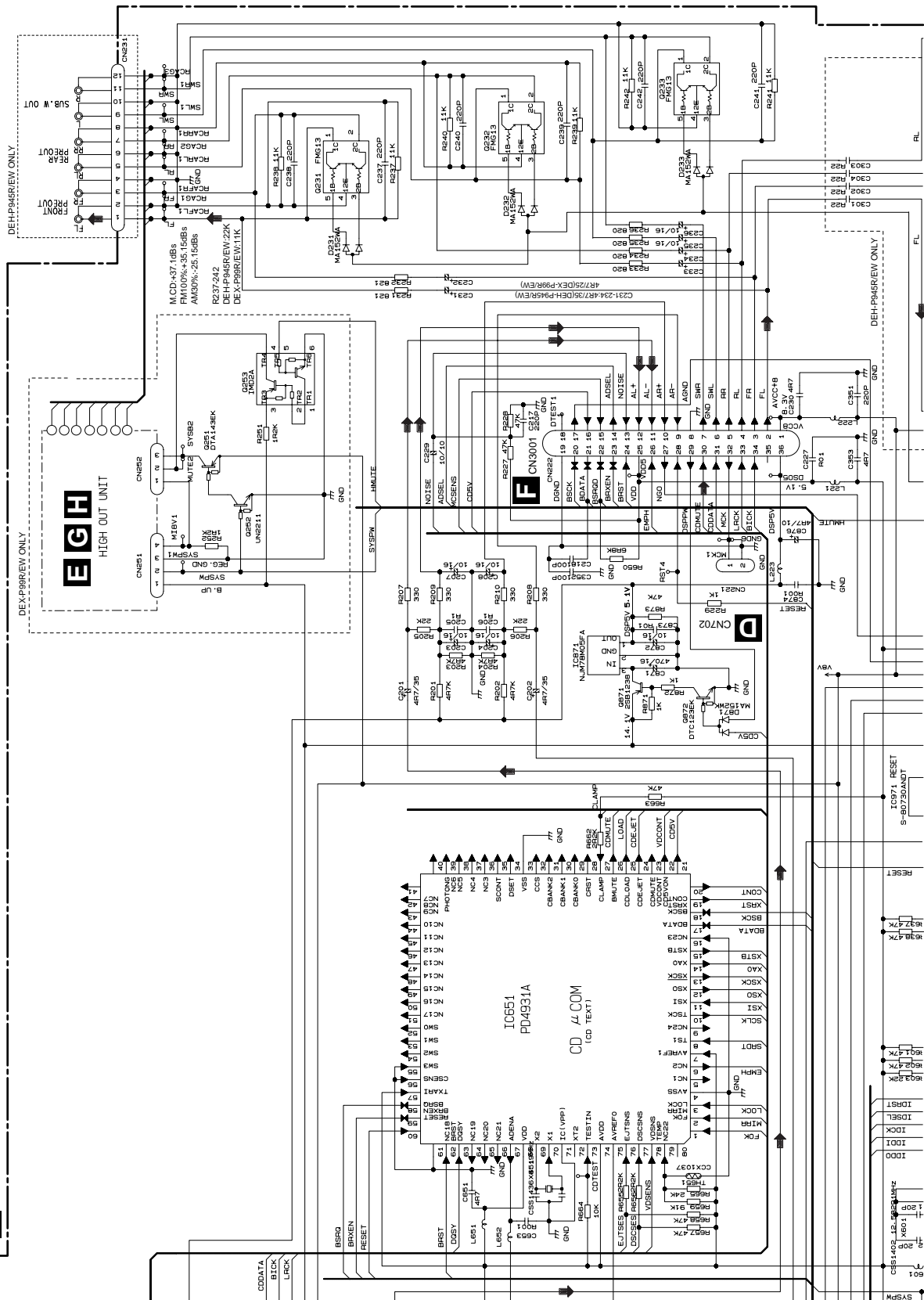
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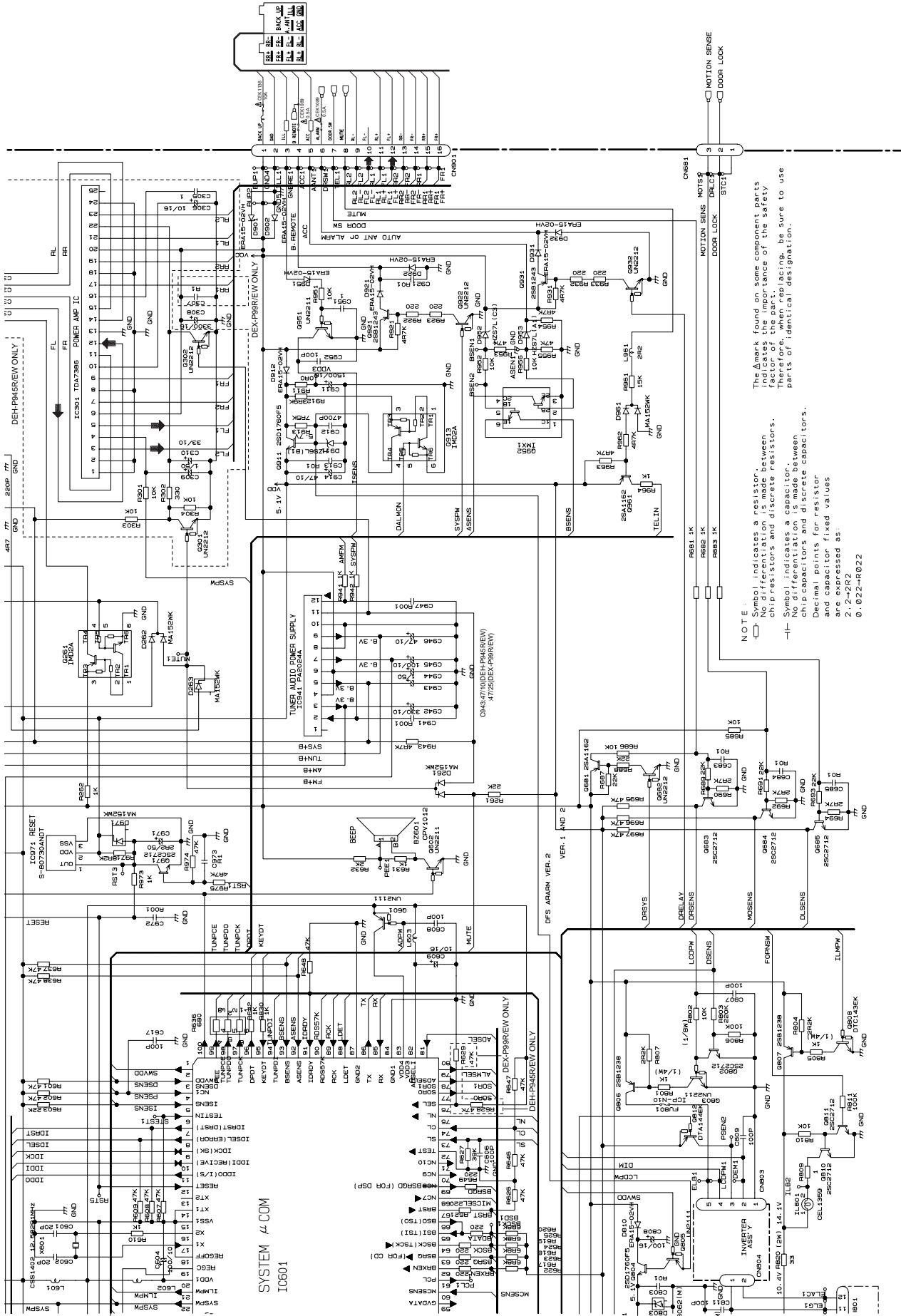
D

A-a K



A-a A-b

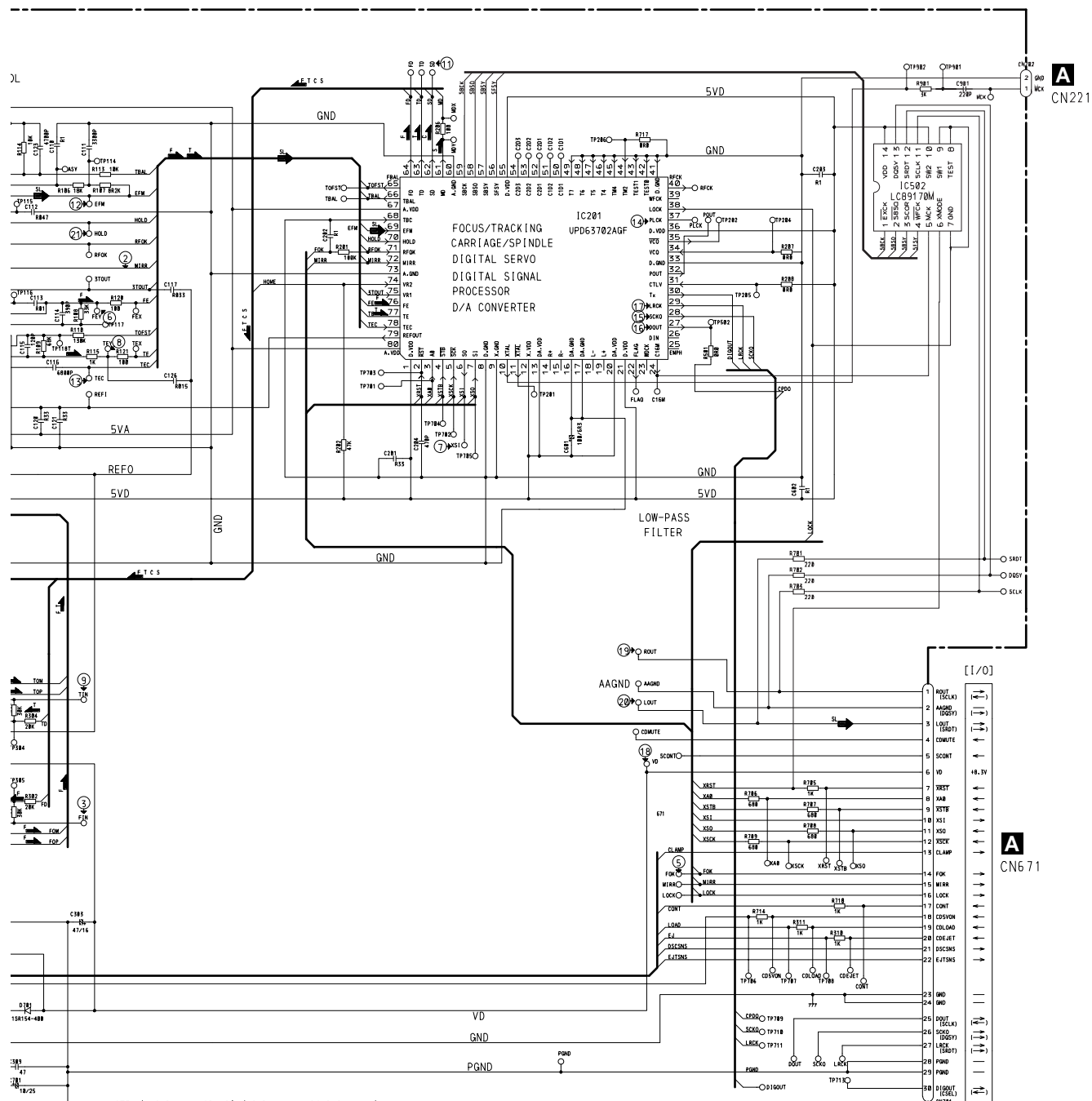




A-a A-b

A-b

D-b



NOTE 1) GND ...CD LSI (AGND Analog, DGND Digital)
PGND ...Actuator, Motor Driver
AAGND ...Audio

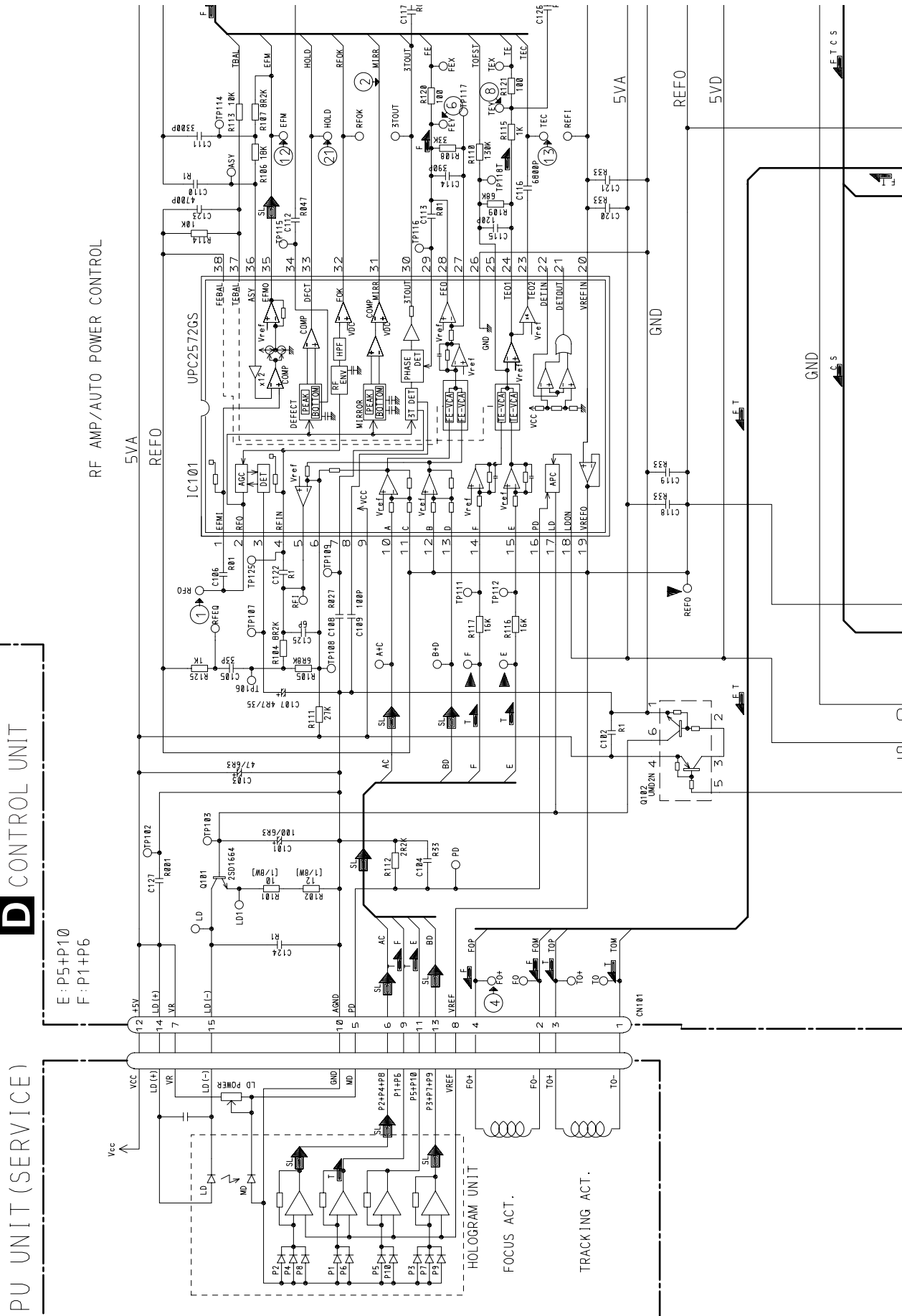
These GND's are not connected to each other on PCB, though they use same symbols in this schematic.

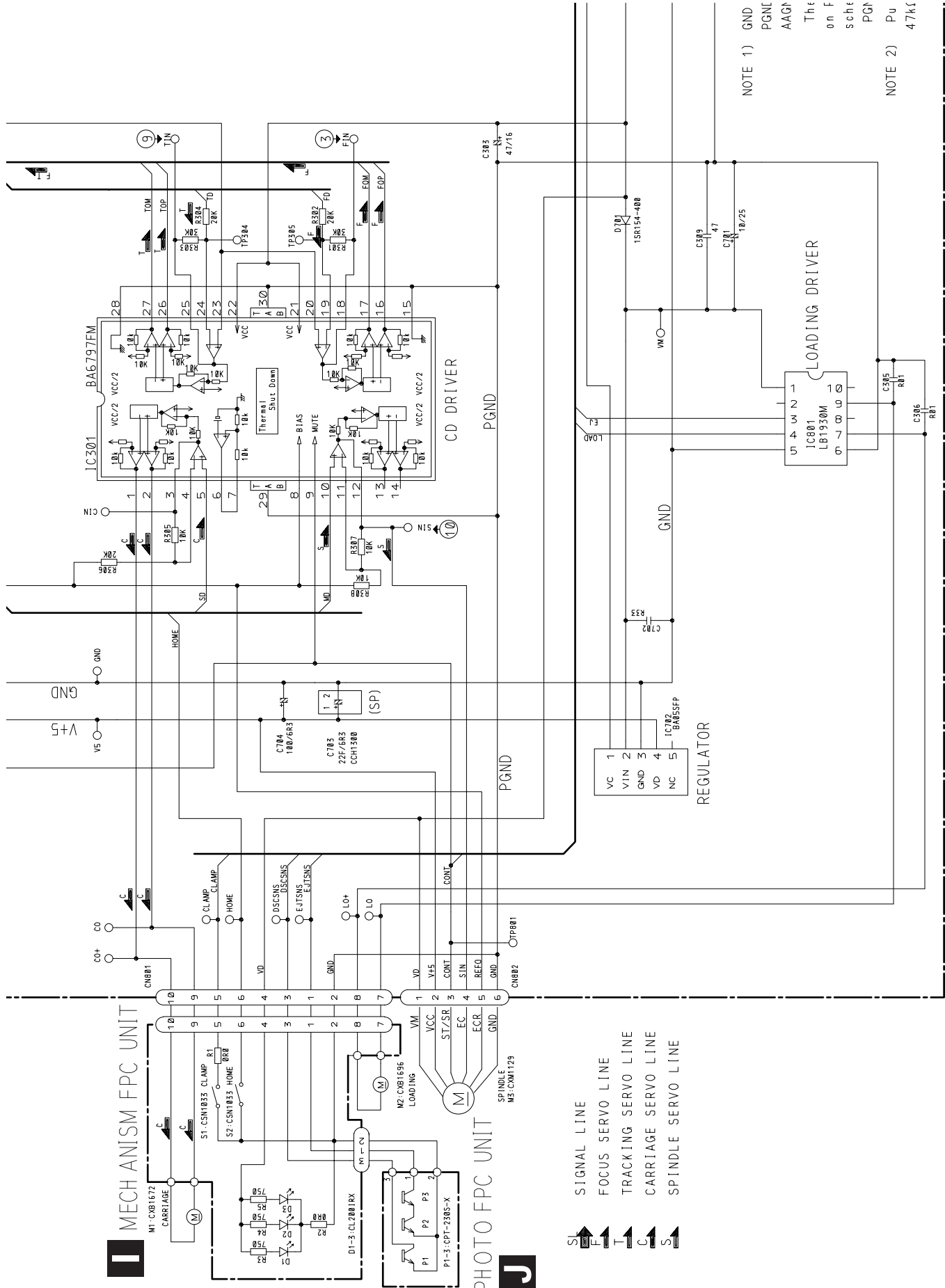
NOTE 2) Pull-up resistors of EJT SNS, DSC SNS should be 47k Ω .

NOTE:

- Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
- ||— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

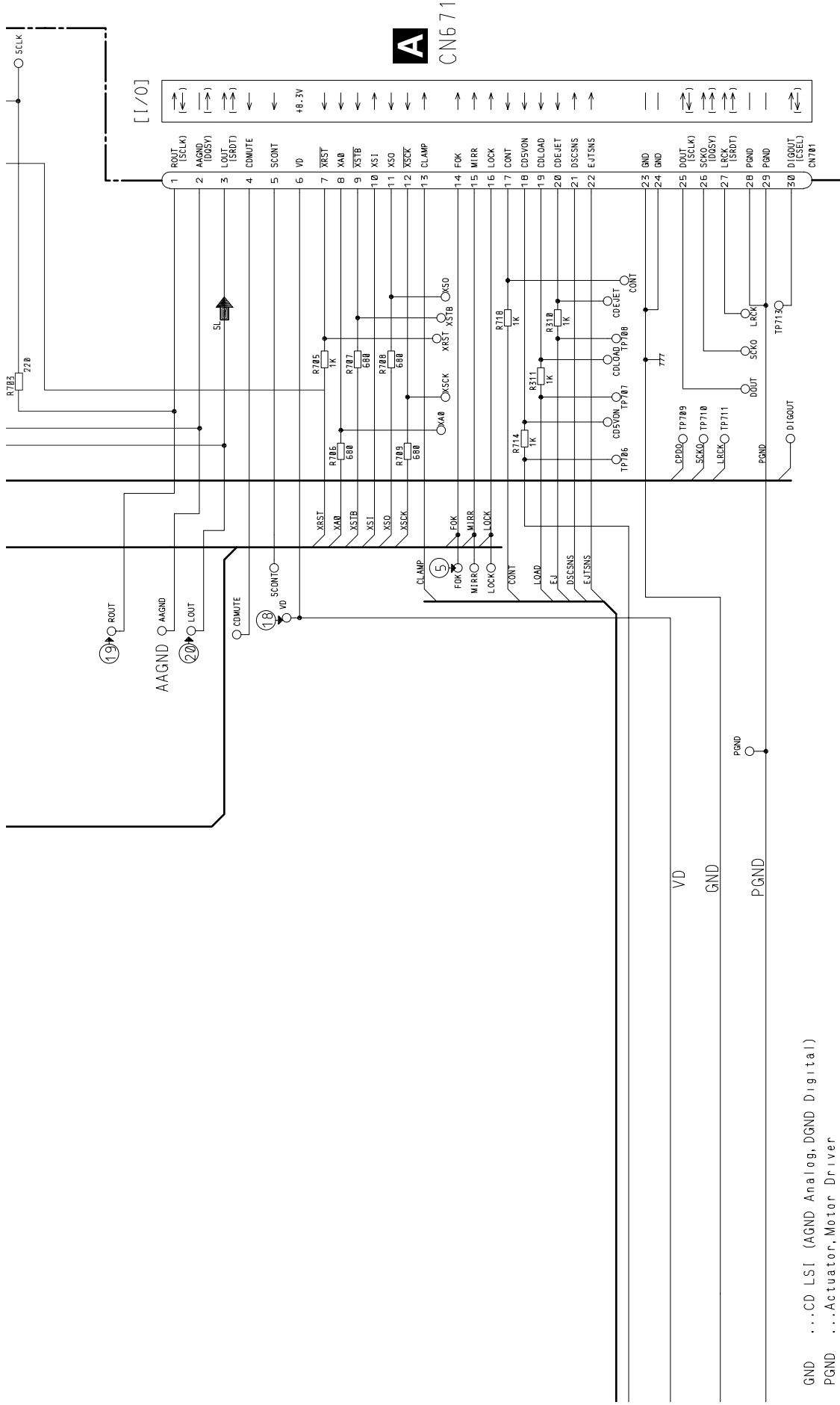
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022





D-a D-b

D-a I J



GND ...CD LSI (AGND Analog, DGND Digital)
PGND ...Actuator, Motor Driver
AAGND ...Audio

These GND's are not connected to each other on PCB, though they use same symbols in this schematic.

PGND is connected to a chassis by a screw.

Pull-up resistors of EJTSNS, DSCNS should be 47k Ω .

NOTES

 Symbol indicates a resistor.

Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.



—||— Symbol indicates a capacitor.

Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:

27

2-2

D-a	D-b
	

D

C

B

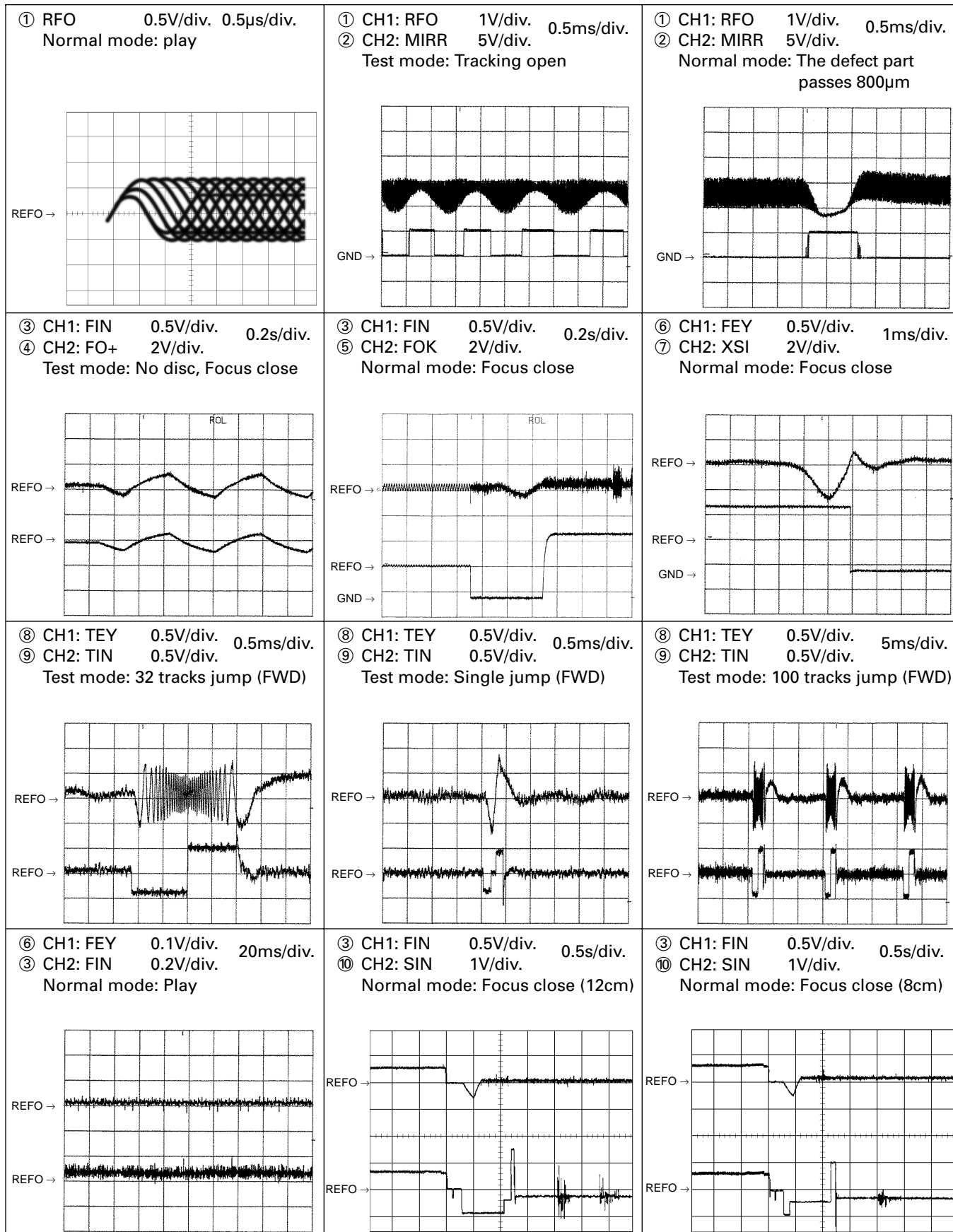
A

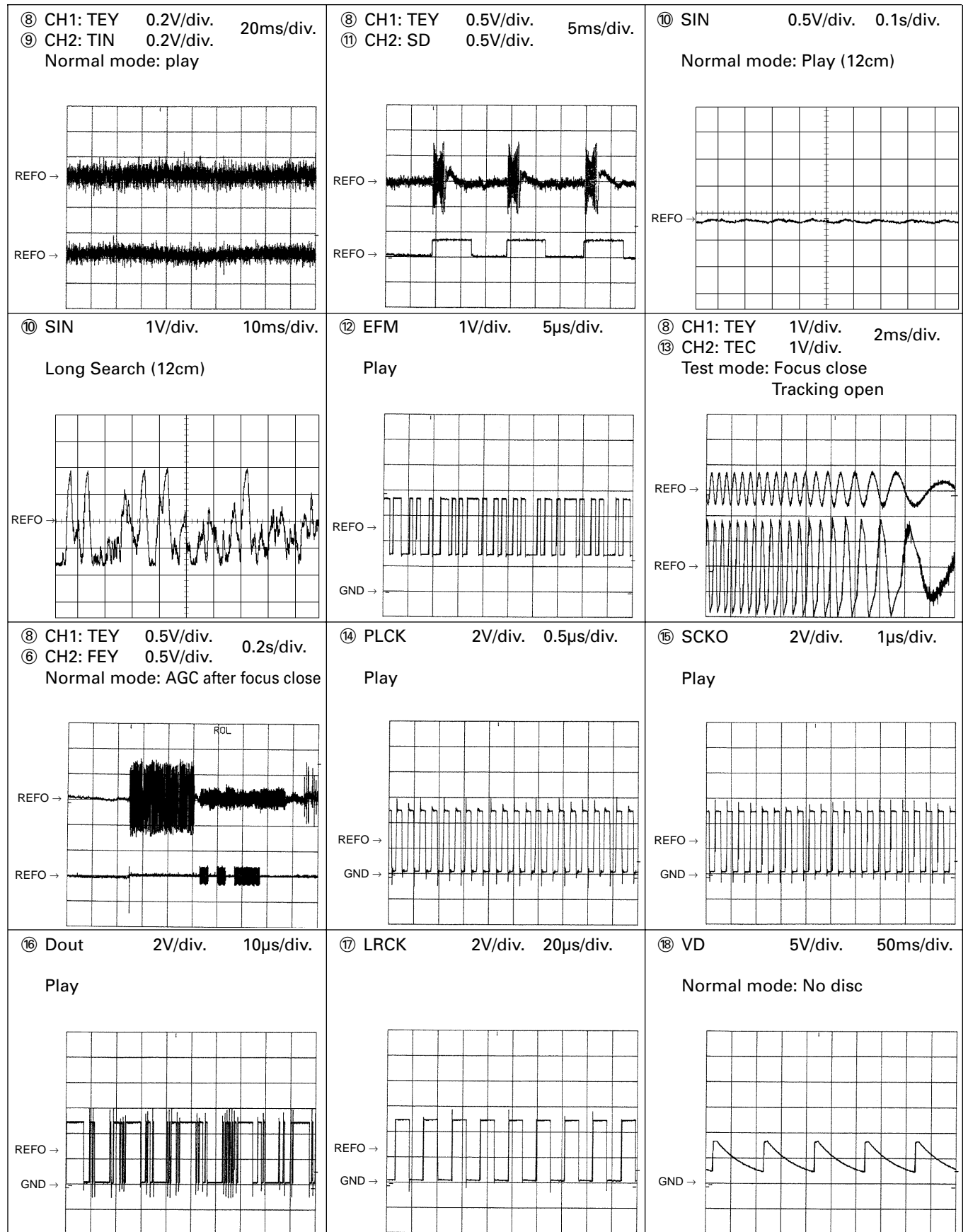
Note:1. The encircled numbers denote measuring pointes in the circuit diagram.

2. Reference voltage

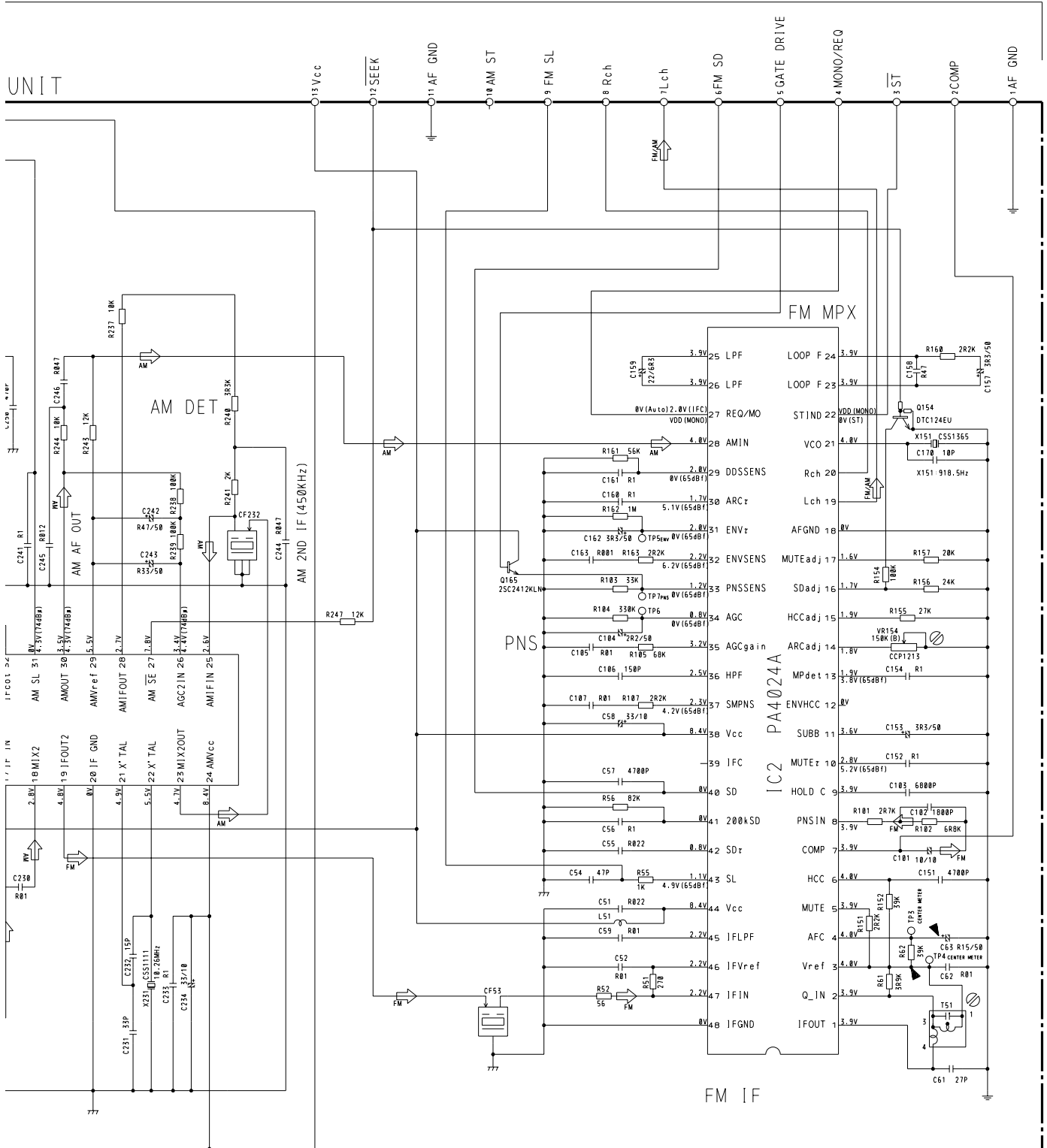
REFO:2.5V

● Waveforms

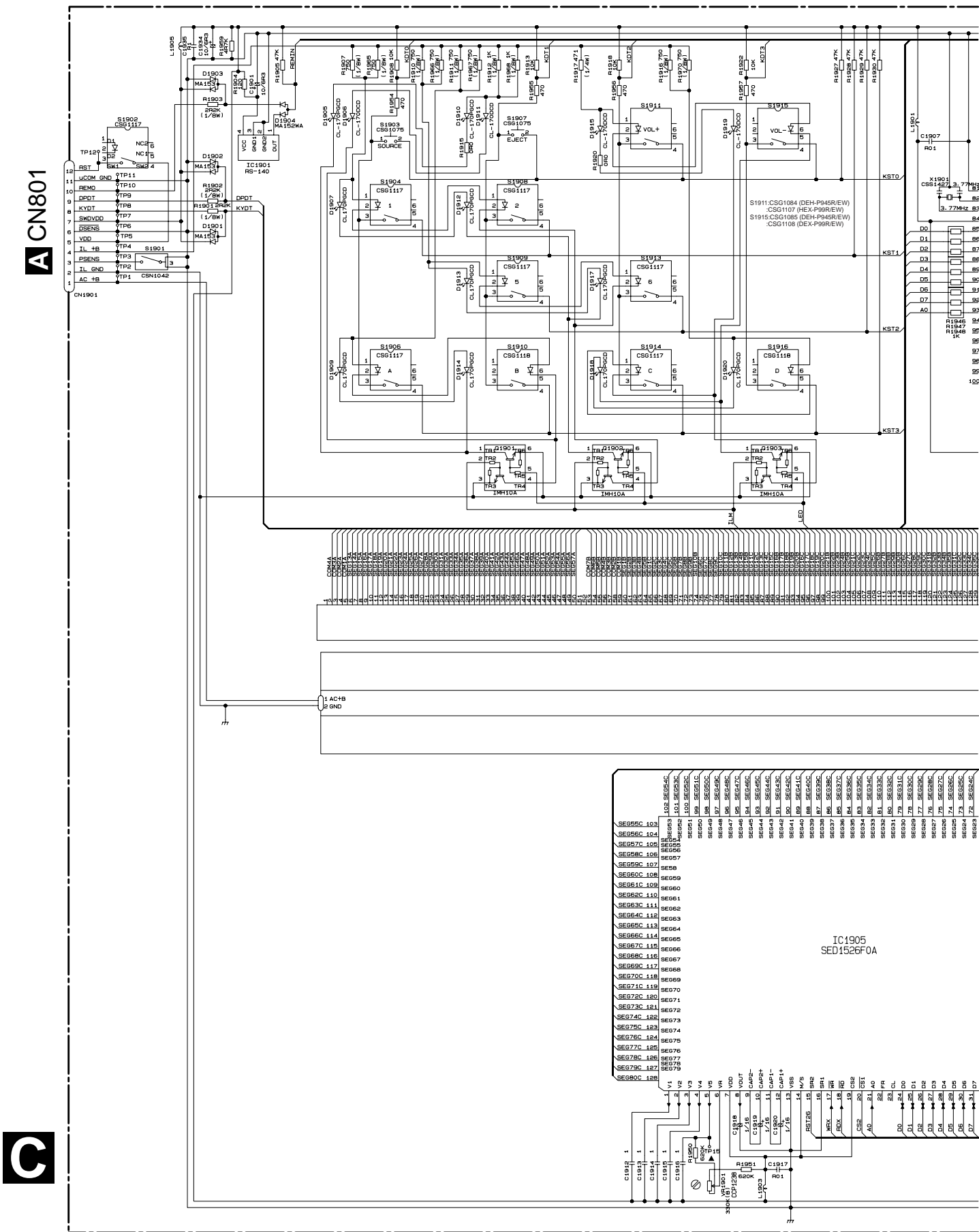


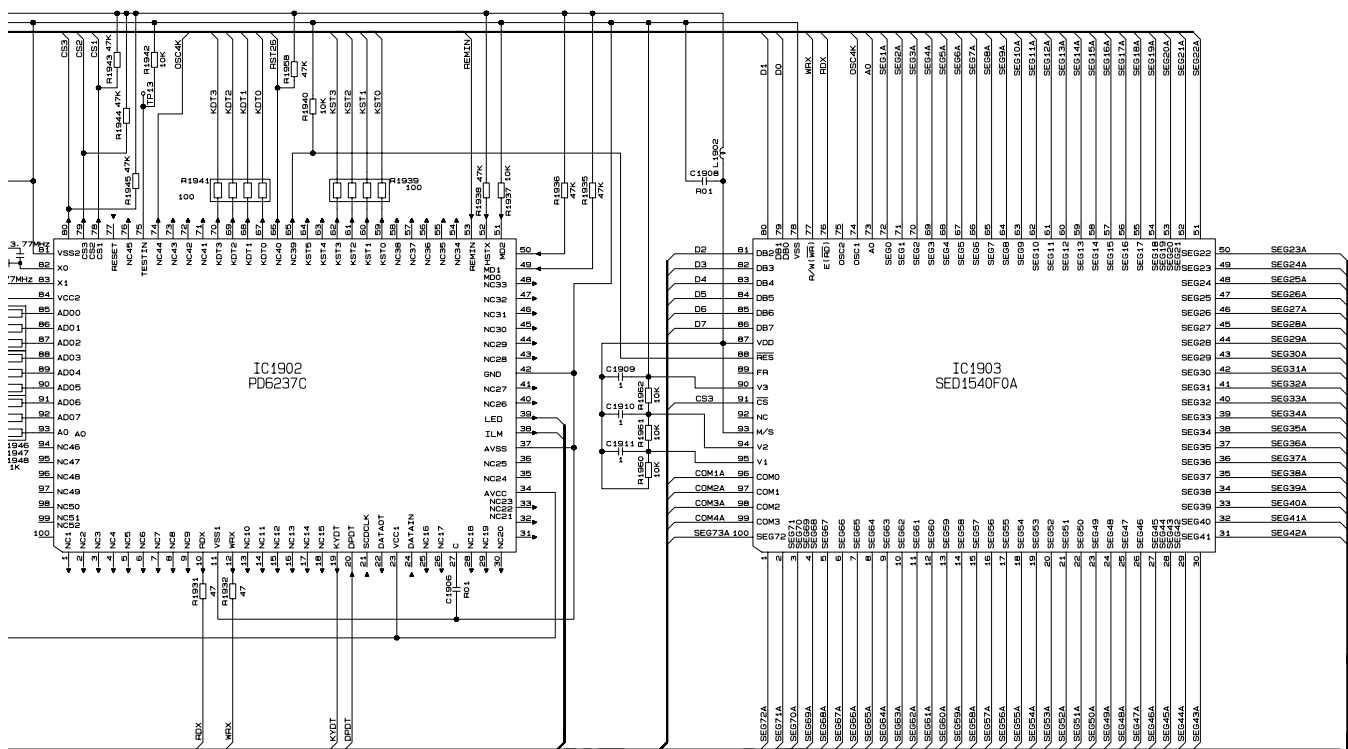


<div><div><div>⑮ CH1: R OUT 1V/div. 0.2ms/div.</div><div>⑯ CH2: L OUT 1V/div.</div><div>Normal mode: Play (1kHz 0dB)</div></div><div><div>REFO →</div><div>REFO →</div></div></div>	<div><div><div>⑥ CH1: FEY 0.2V/div. 1ms/div.</div><div>③ CH2: FIN 0.5V/div.</div><div>Normal mode: During AGC</div></div><div><div>REFO →</div><div>REFO →</div></div></div>	<div><div><div>⑧ CH1: TEY 0.2V/div. 1ms/div.</div><div>⑨ CH2: TIN 0.5V/div.</div><div>Normal mode: During AGC</div></div><div><div>REFO →</div><div>REFO →</div></div></div>
<div><div><div>① CH1: RFO 1V/div. 0.5ms/div.</div><div>② CH2: HOLD 5V/div.</div><div>Normal mode: The defect part passes 800μm</div></div><div><div>GND →</div></div></div>	<div><div><div>③ CH1: FIN 1V/div. 0.5ms/div.</div><div>② CH2: HOLD 5V/div.</div><div>Normal mode: The defect part passes 800μm</div></div><div><div>GND →</div></div></div>	



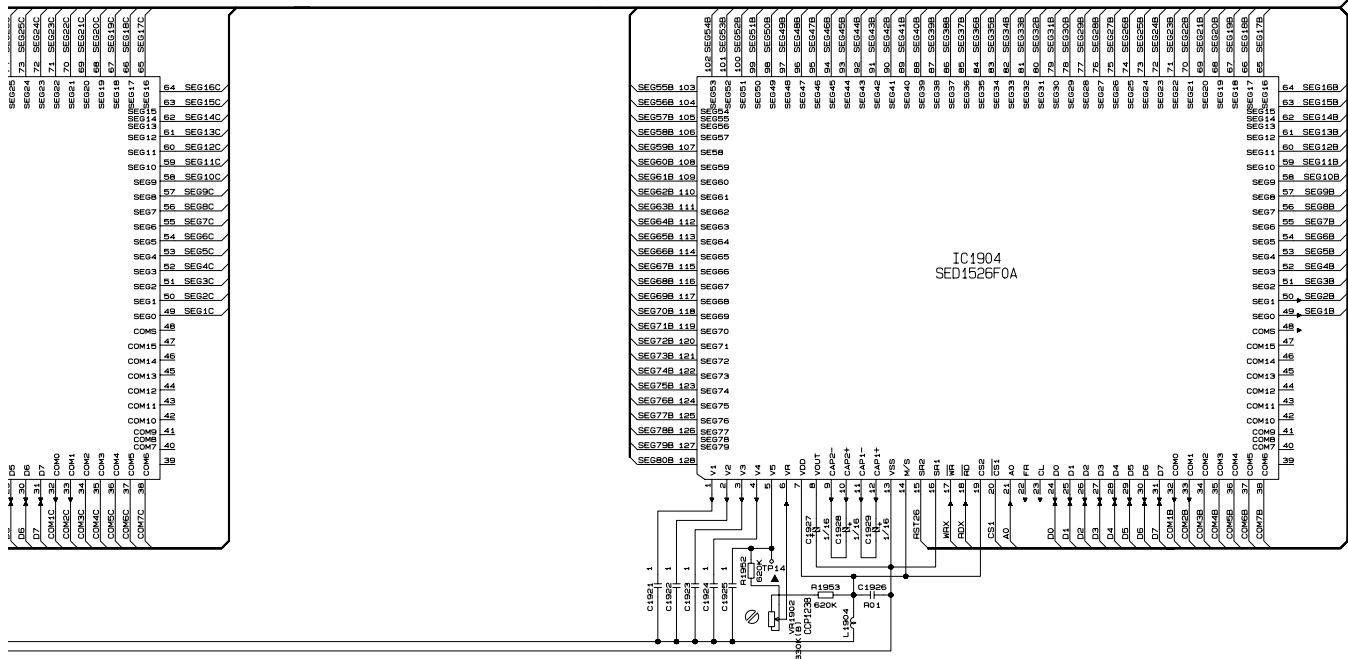
3.4 KEYBOARD PCB





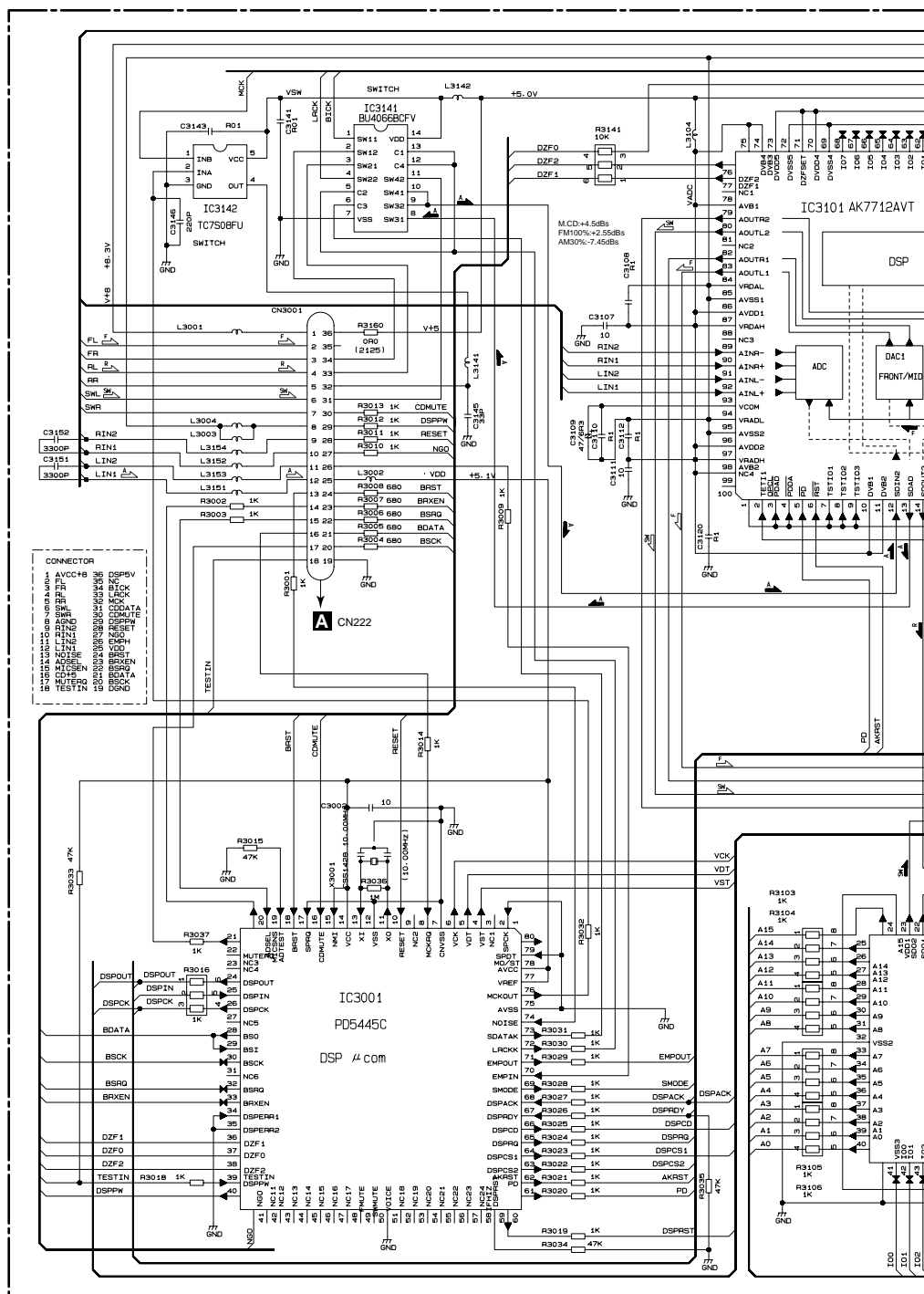
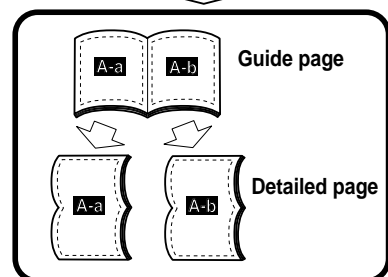
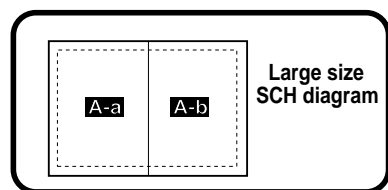
LCD1901
CAW1471 (DEH-P945R/EW)
CAW1493 (DEX-P99R/EW)

EL 1901
CEL 1580

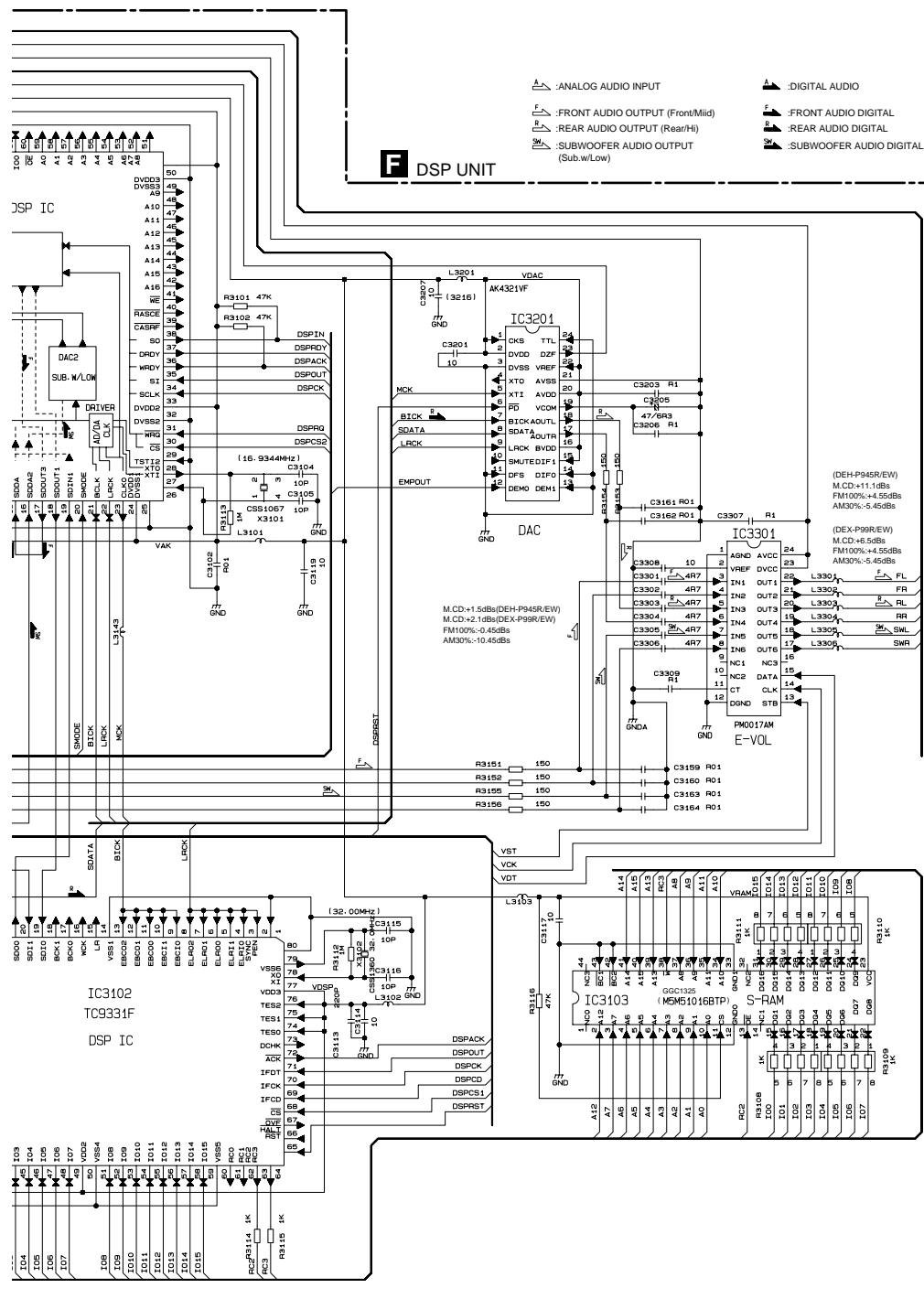


3.5 DSP UNIT(GUIDE PAGE)

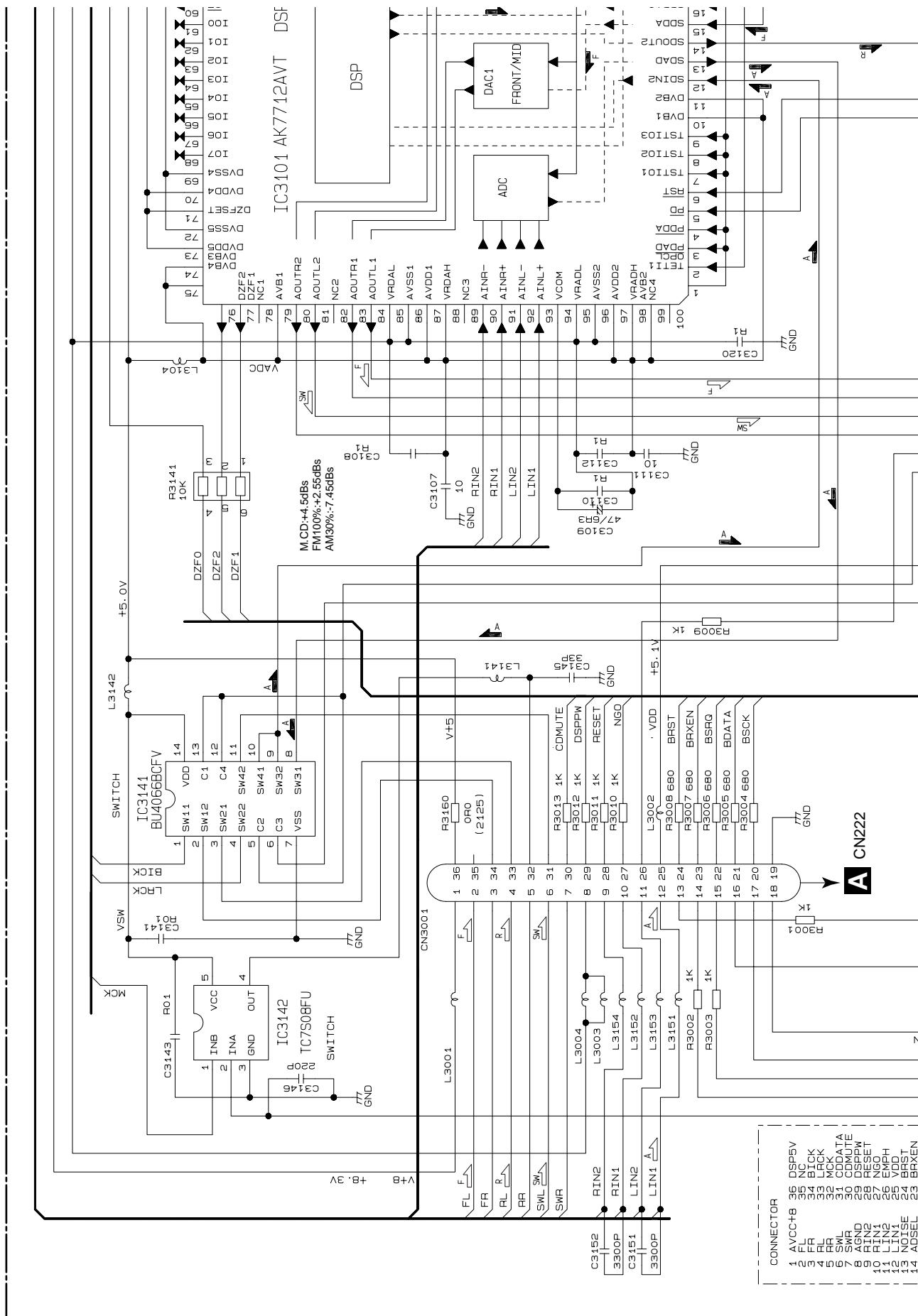
F-a



F DSP UNIT

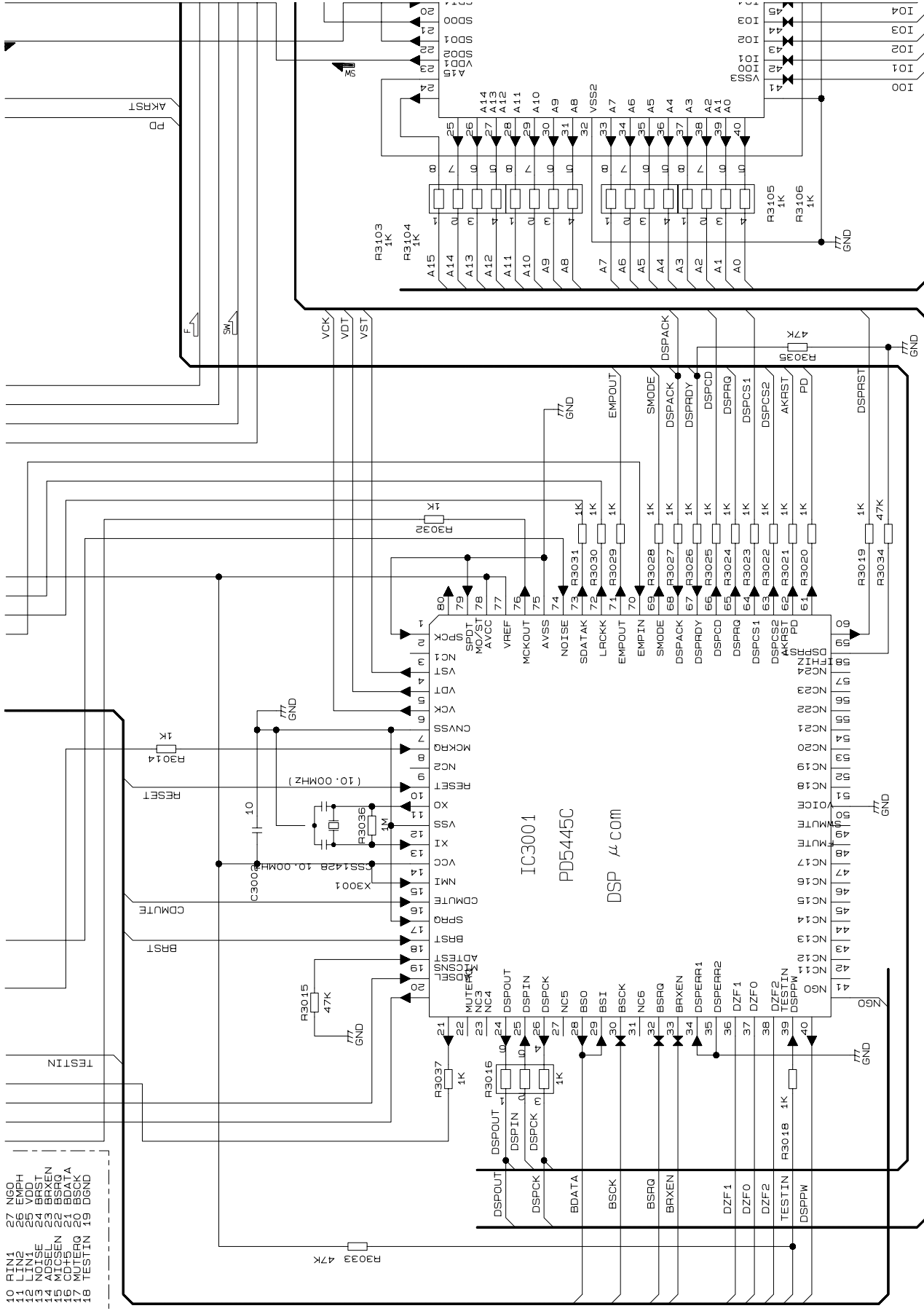


F-a F-b



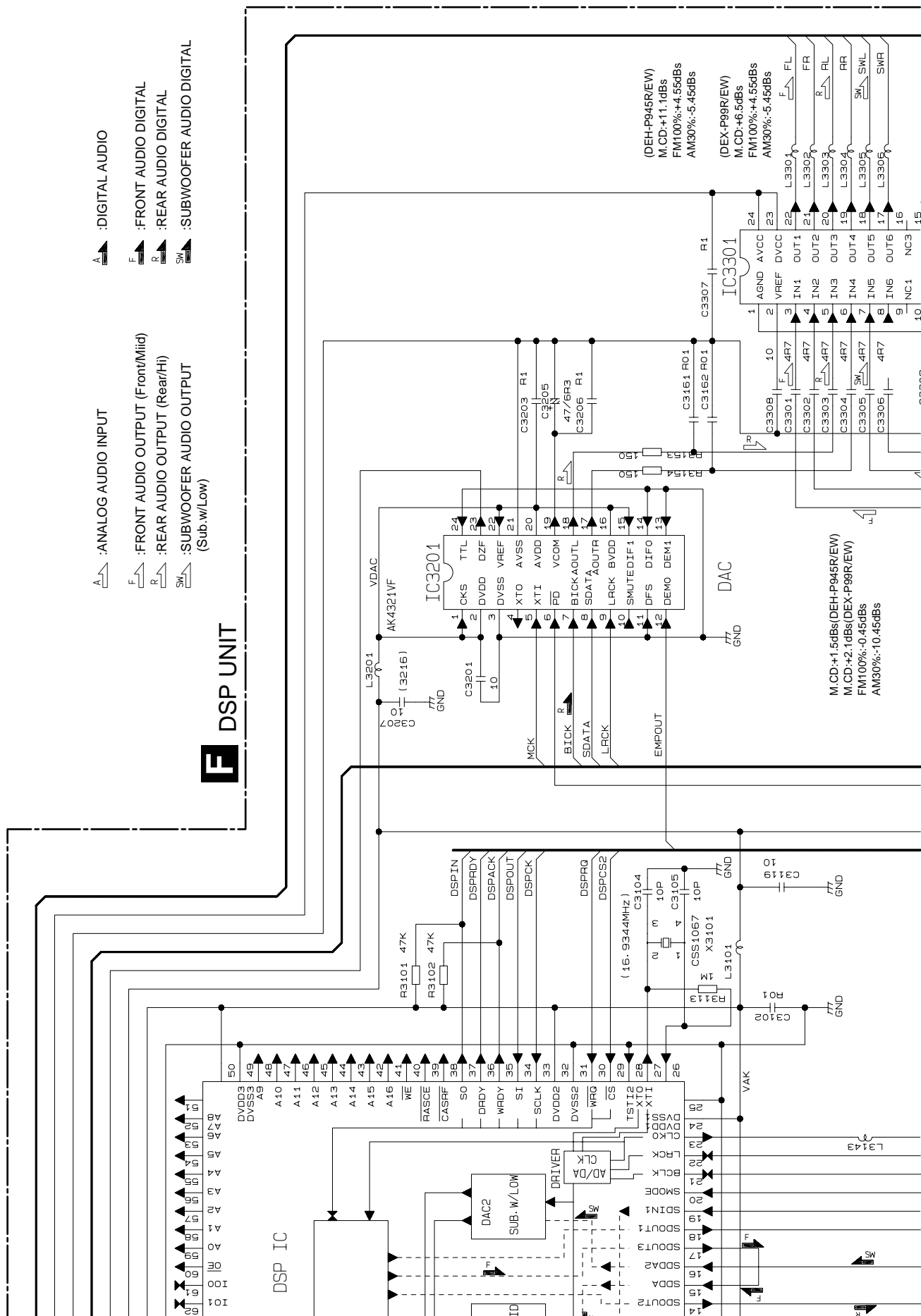
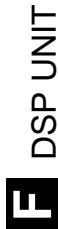
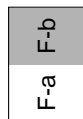
CONNECTOR	
1	AVCC+B
2	FL
3	FR
4	RL
5	RR
6	SWL
7	SWR
8	AGND
9	COMUTE
10	IN1
11	IN2
12	LINE1
13	NOISE
14	ADSEL
15	DSP5V
16	NC
17	BACK
18	FL
19	FR
20	RL
21	RR
22	SWL
23	SWR
24	COMDATA
25	COMUTE
26	DSP5V
27	IN1
28	IN2
29	LINE1
30	NOISE
31	ADSEL
32	AVCC+B
33	FL
34	FR
35	RL
36	RR
37	SWL
38	SWR
39	COMDATA
40	COMUTE
41	DSP5V
42	IN1
43	IN2
44	LINE1
45	NOISE
46	ADSEL

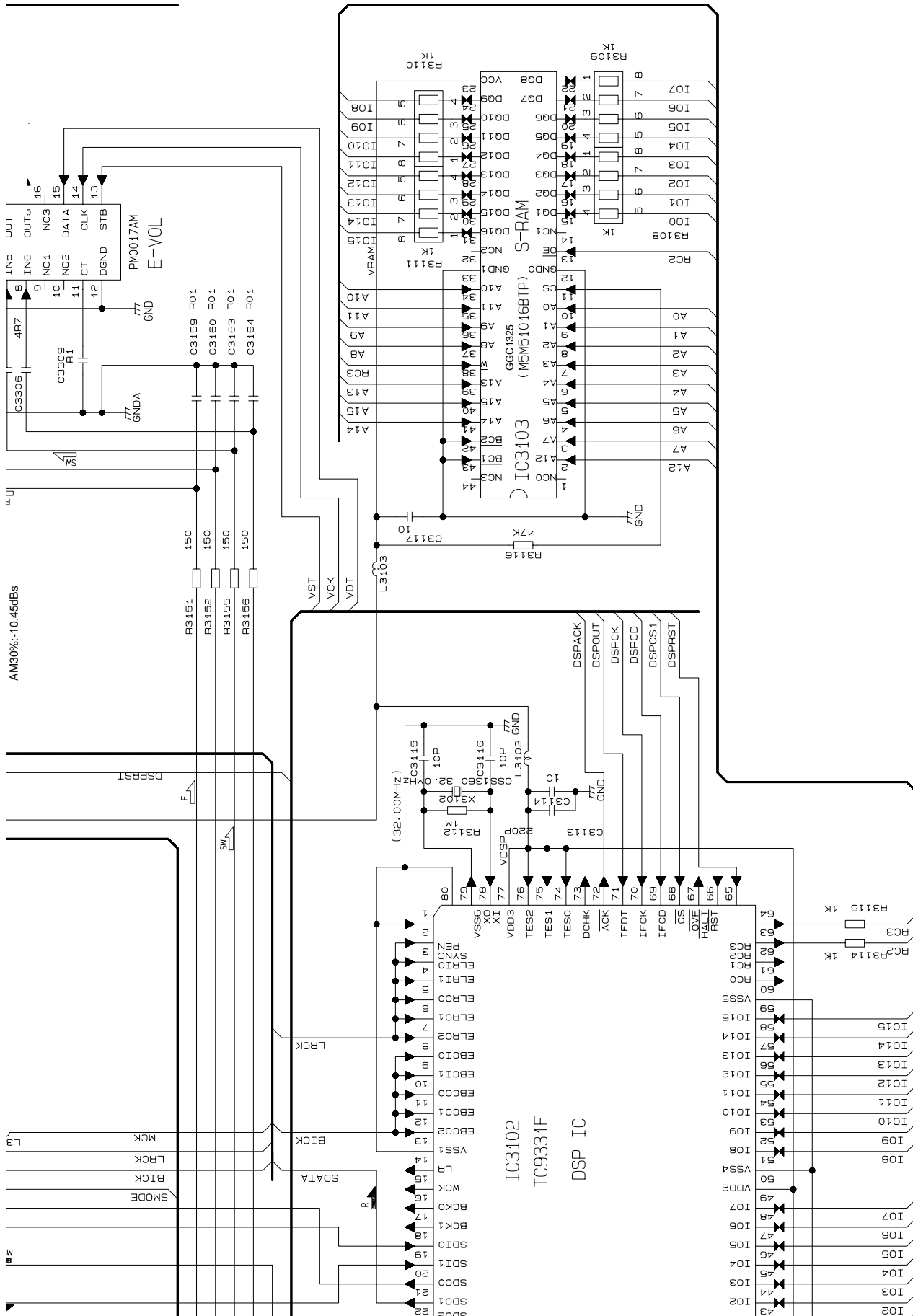
F-a



F-a F-b

F-a



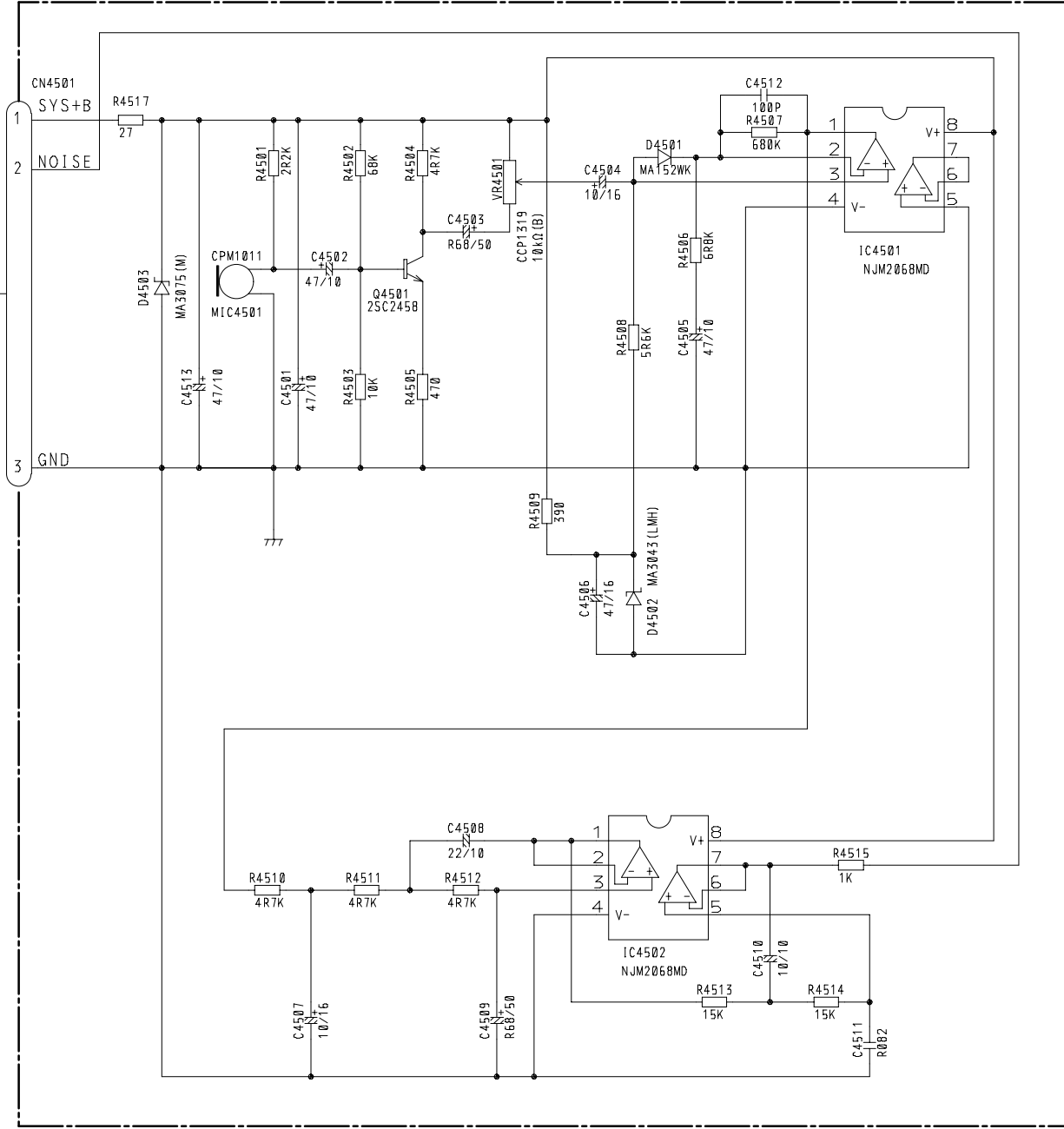


F-a F-b

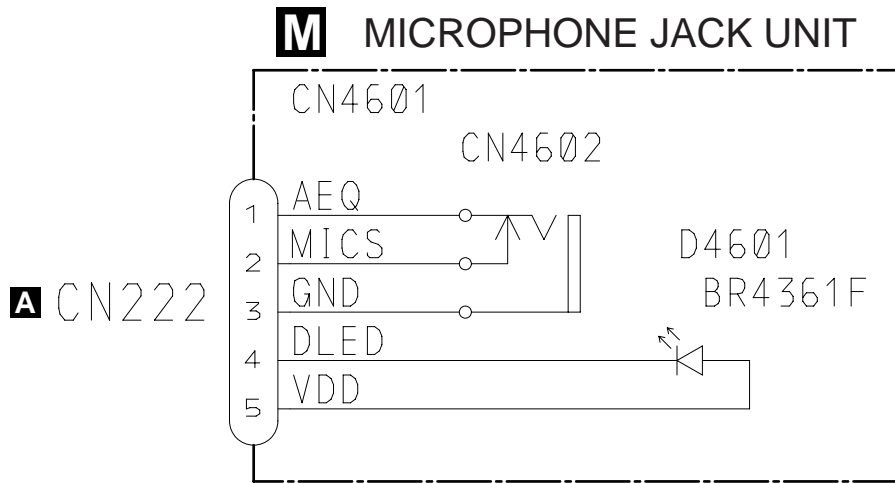
3.6 ASL UNIT

L ASL UNIT

A CN141



3.7 MICROPHONE JACK UNIT



3.8 HIGH OUT UNIT (DEX-P99R/EW)

A

B

C

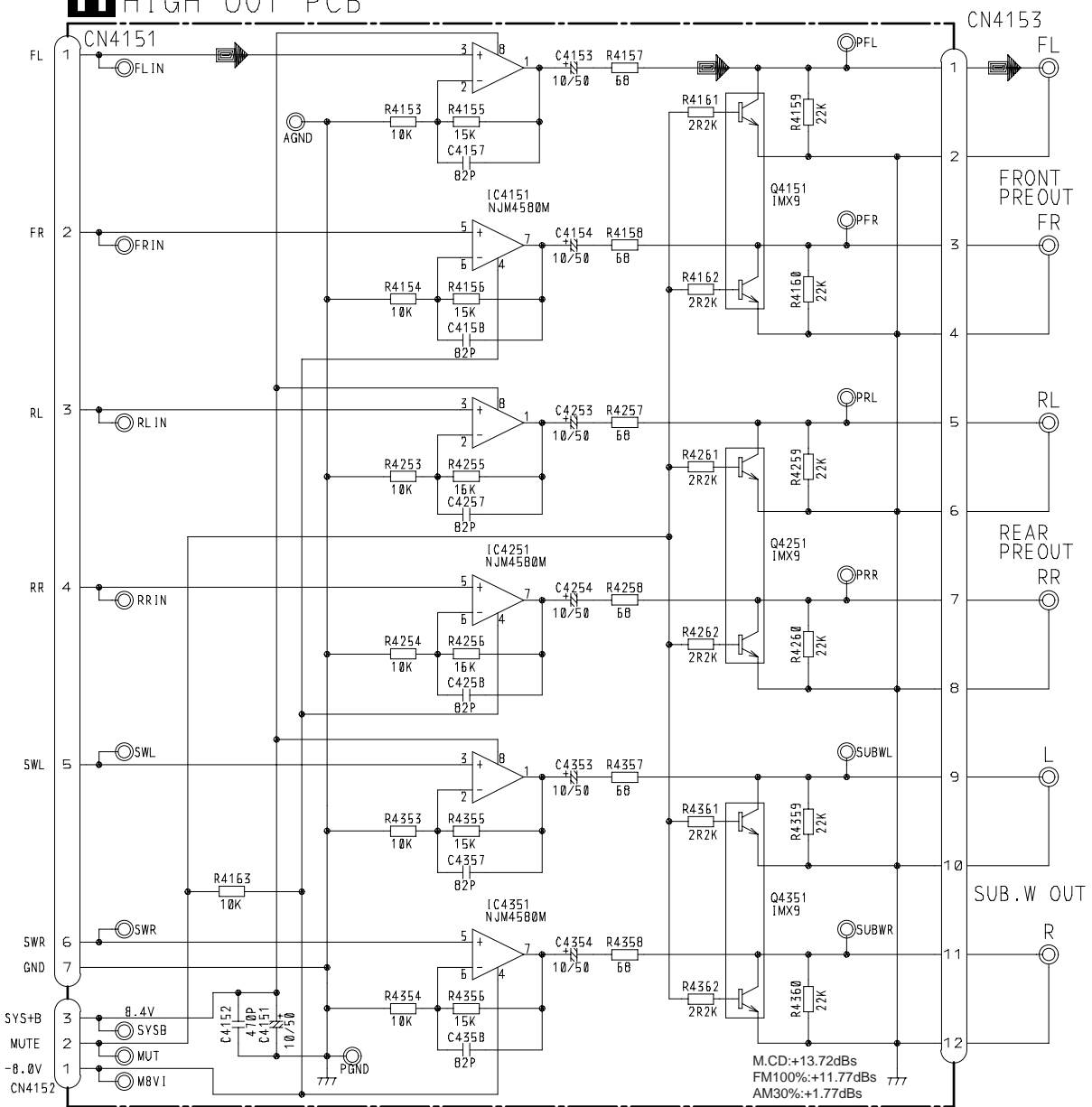
D

A CN231

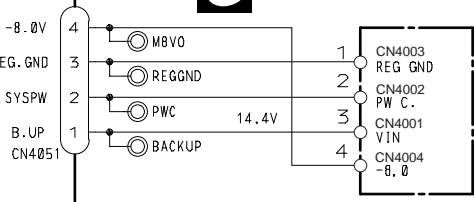
A CN252

A CN251

H HIGH OUT PCB



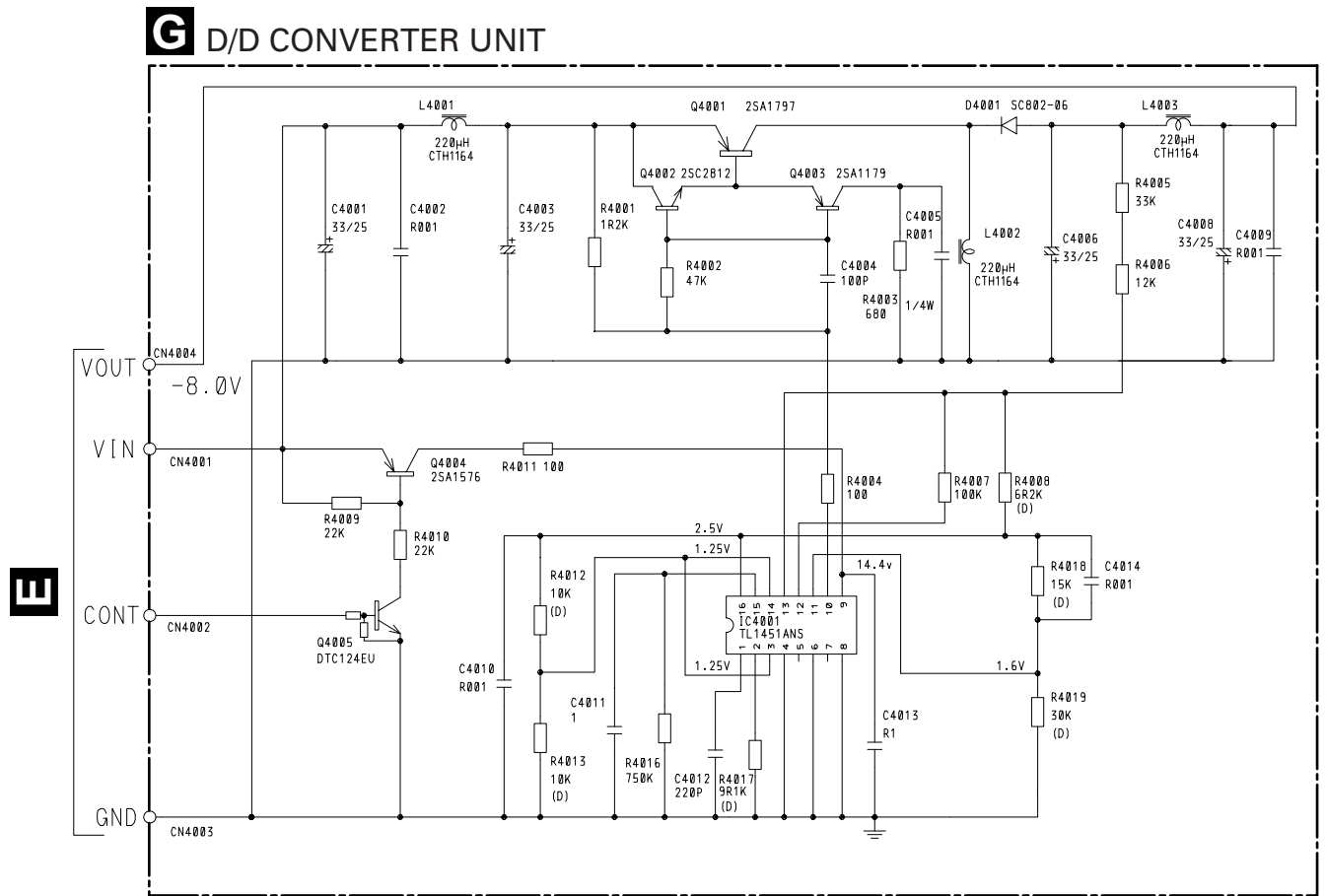
G D/D CONVERTER UNIT



HIGH OUT UNIT
Consists of
High Out PCB
D/D Converter PCB

E D/D CONVERTER PCB

3.9 D/D CONVERTER UNIT (DEX-P99R/EW)



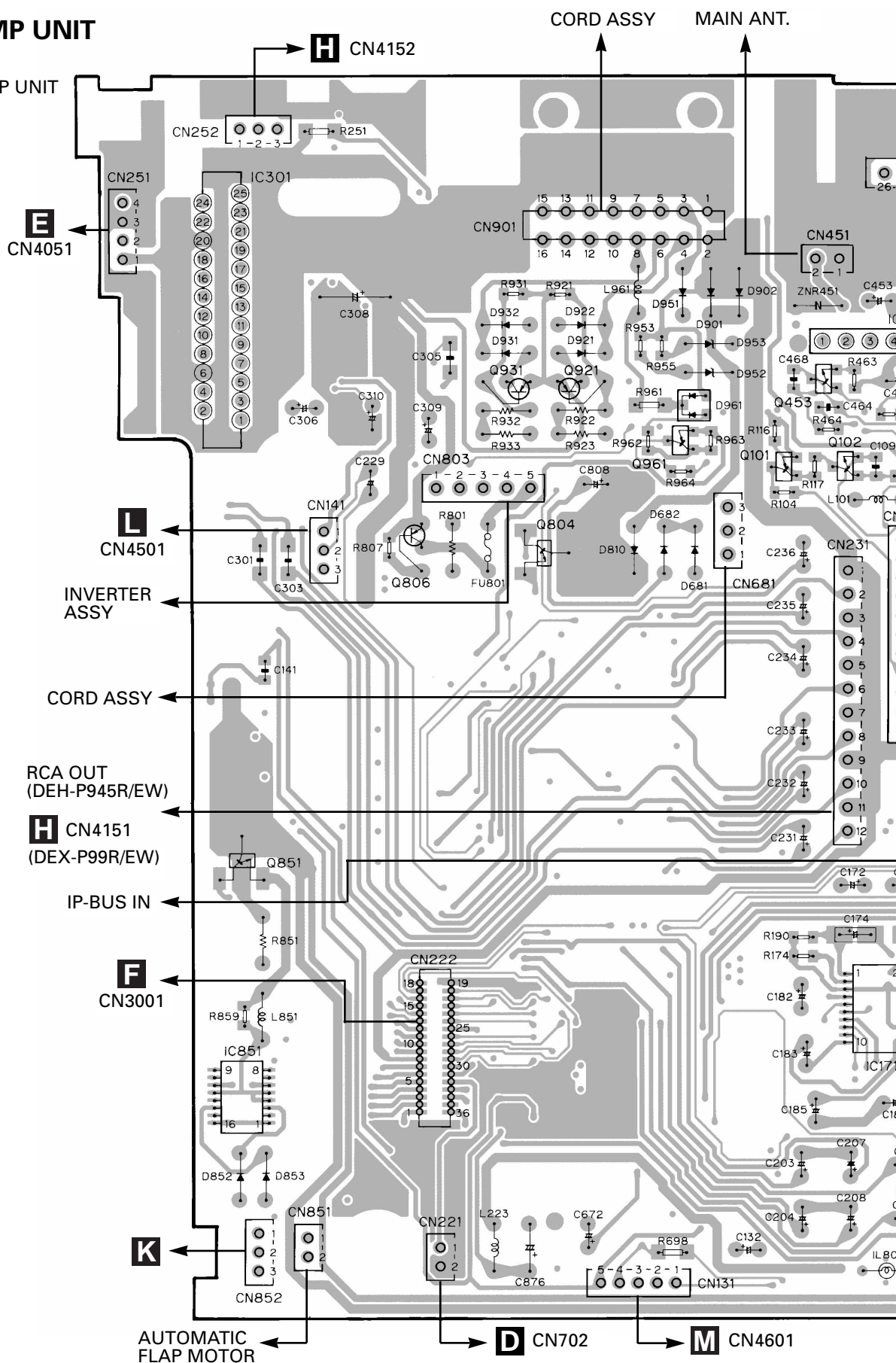
1. The parts mounted on this PCB include all necessary parts for several destination.

For further information for respective destinations, be sure to check with the schematic diagram.

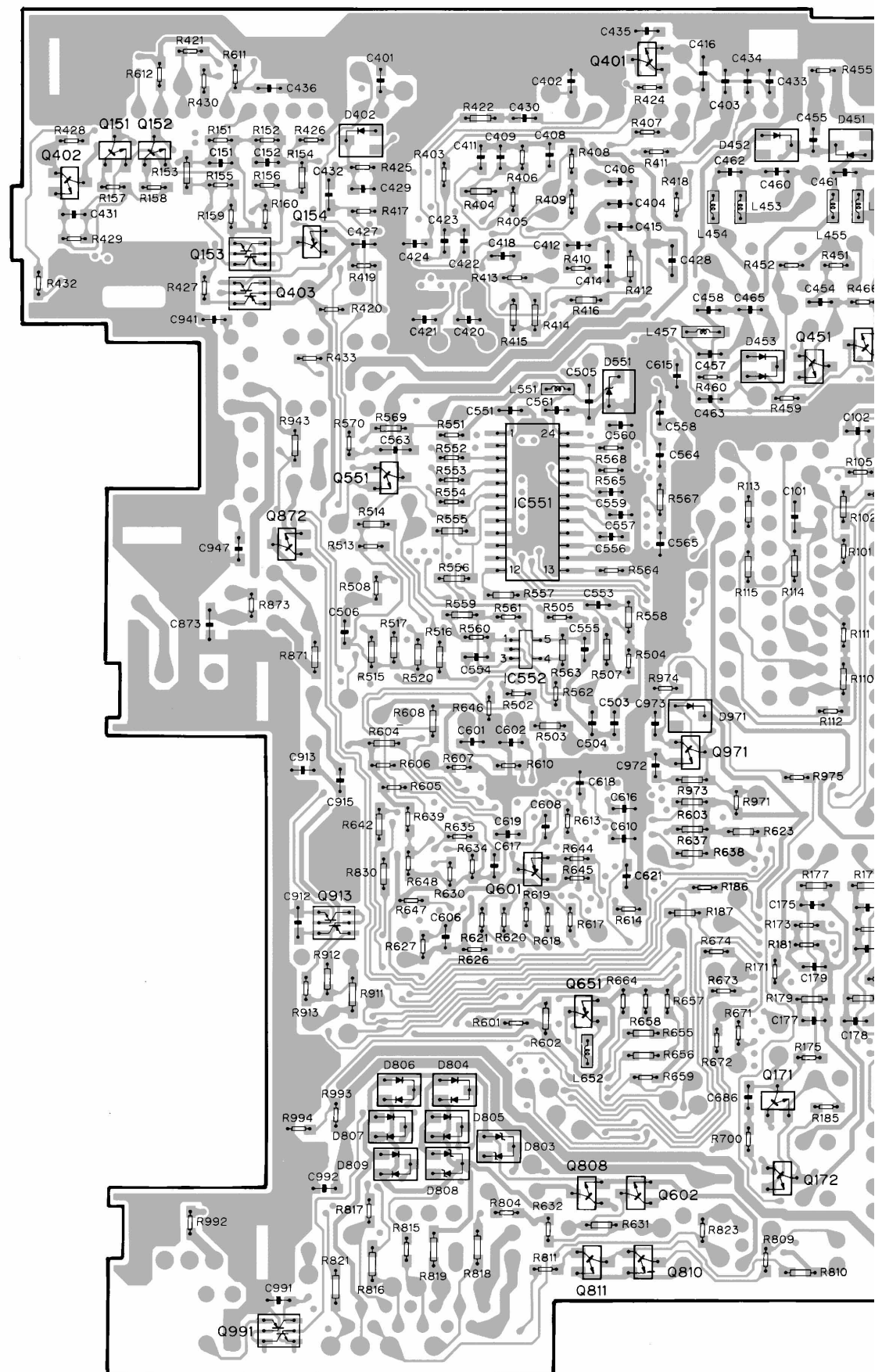
4. PCB CONNECTION DIAGRAM

4.1 TUNER AMP UNIT

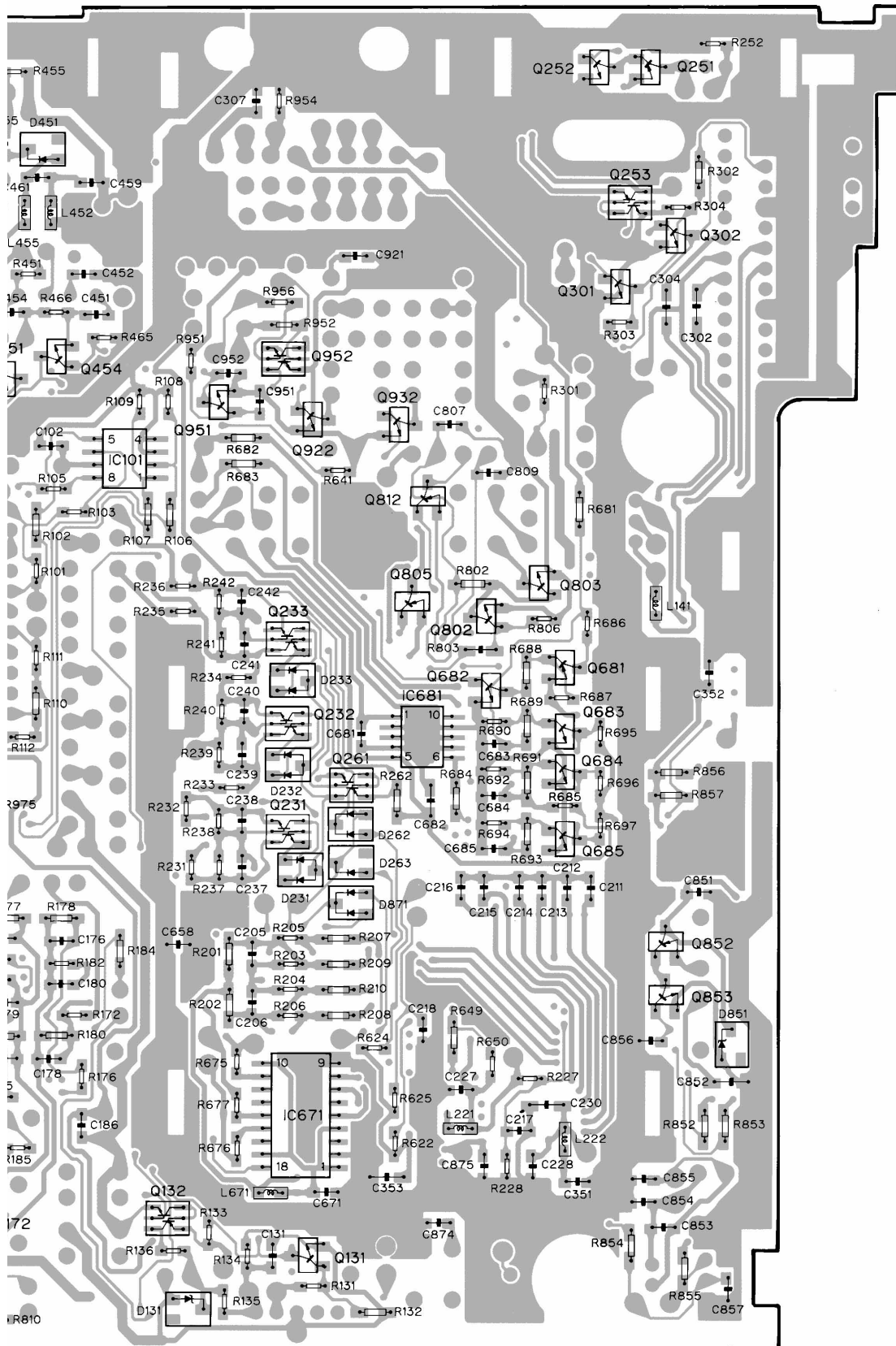
A TUNER AMP UNIT



A TUNER AMP UNIT



SIDE B



IC, Q

Q401 Q252 Q251

Q151 Q152

Q402 Q253

Q302

Q154

Q153 Q301

Q403

Q454 Q952

Q451

Q951

Q922 Q932

IC101

Q551 Q812

IC551

Q872 Q803

Q805 Q802

Q233

IC552 Q681

Q682

Q232 IC681 Q683

Q971 Q261 Q684

Q231 Q685

Q601

Q852

Q913

Q853

Q651

IC671

Q171

Q172 Q132

Q808 Q602 Q131

Q811 Q810

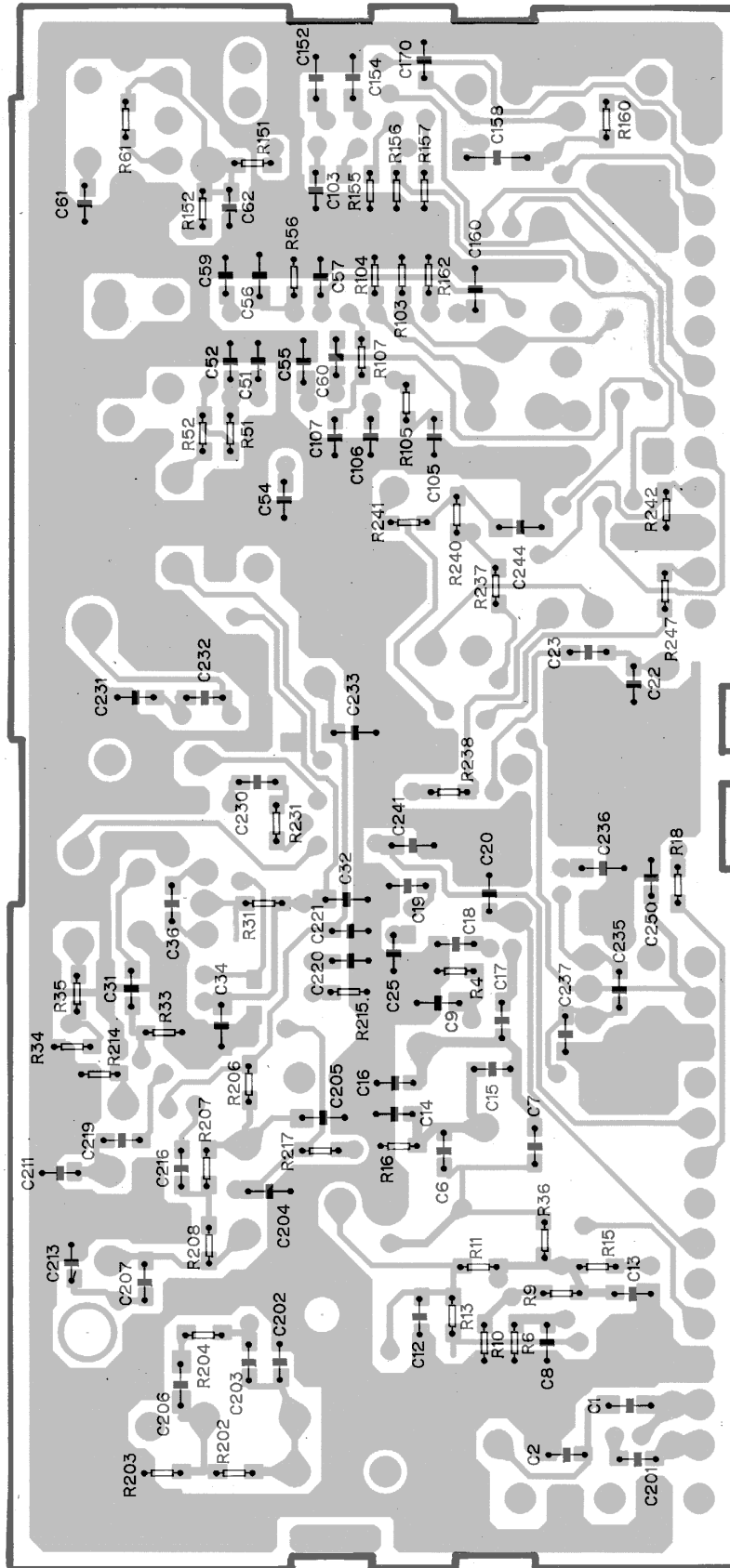
Q991

27

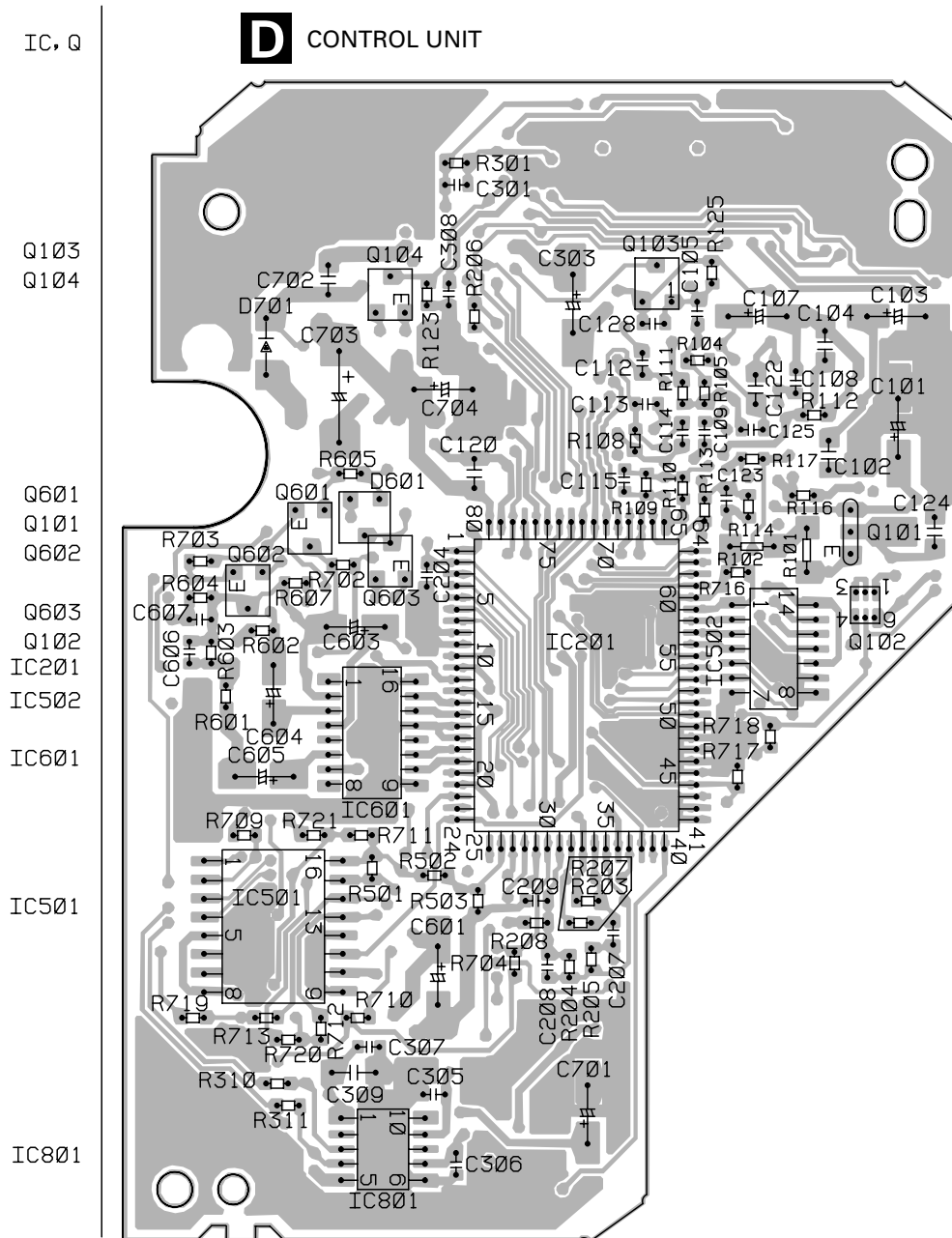


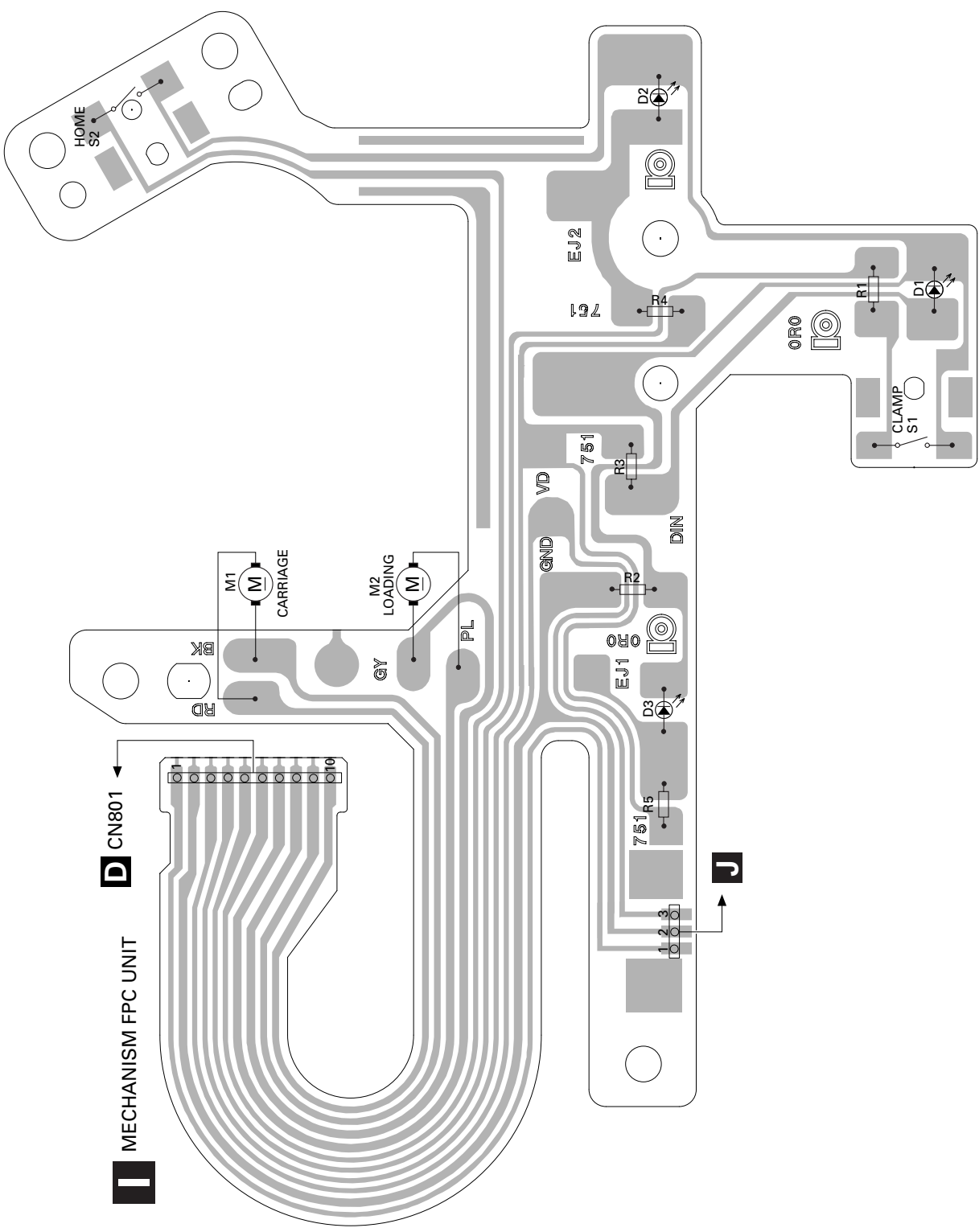
SIDE B

B FM/AM TUNER UNIT



SIDE A





A

B

C

D

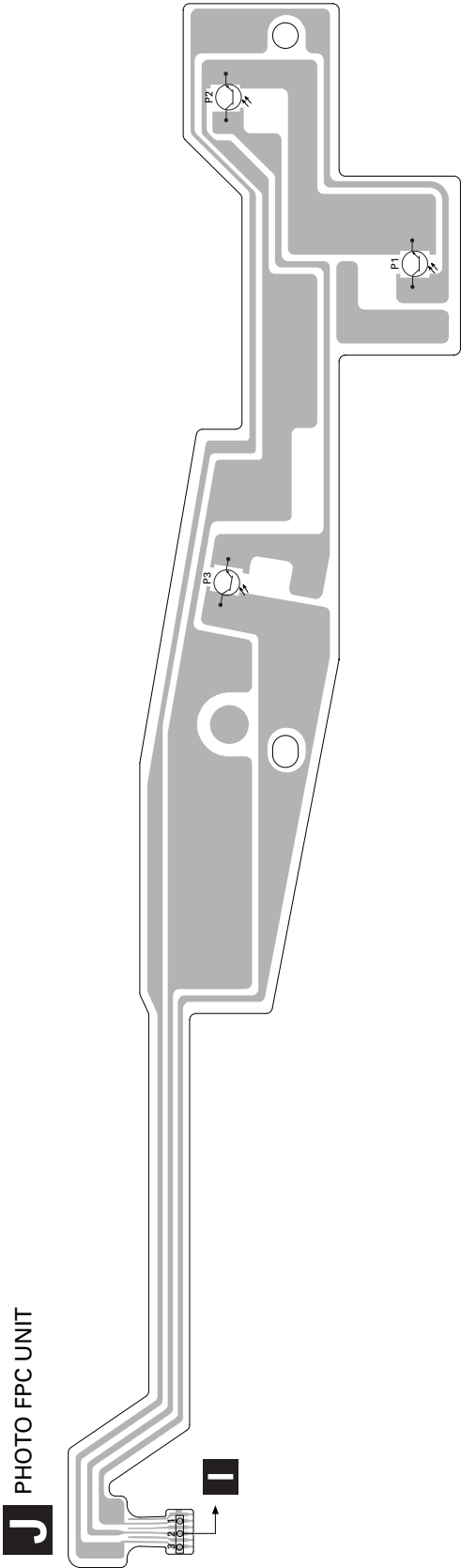


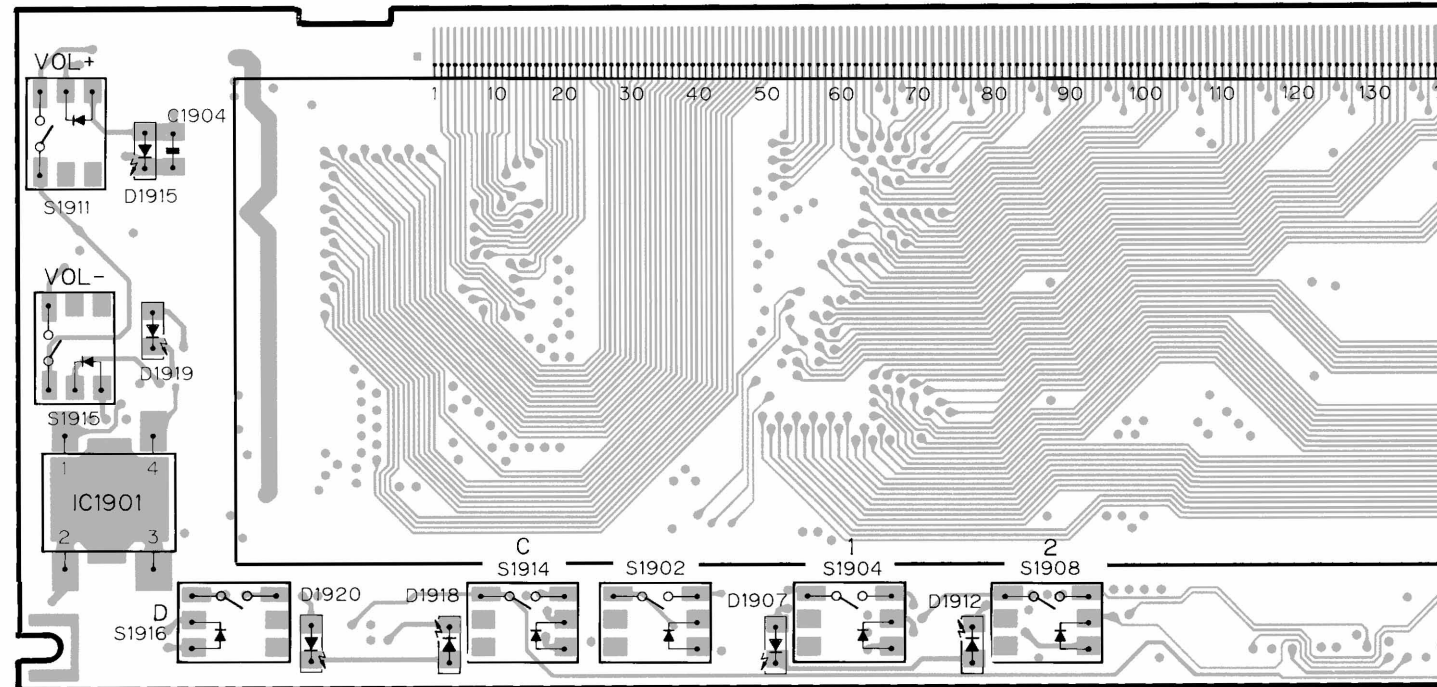
PHOTO FPC UNIT

J

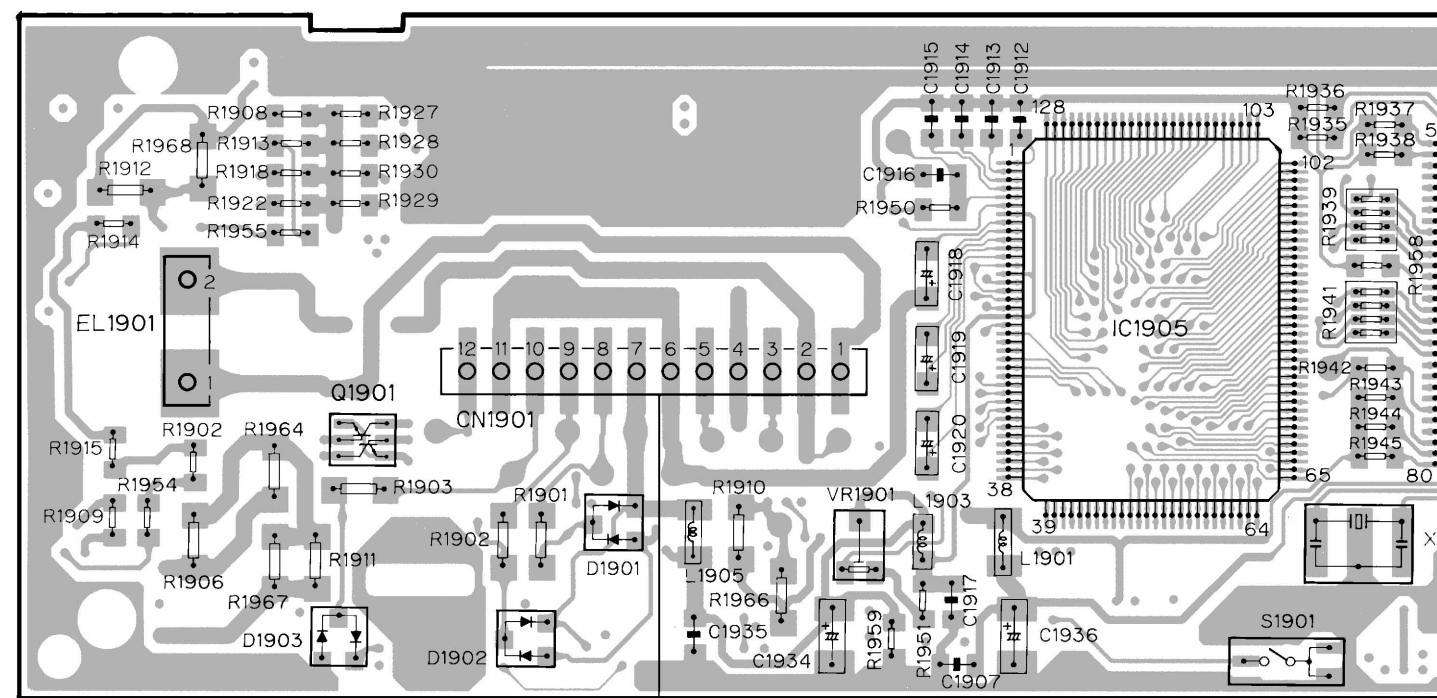
I

4.4 KEYBOARD UNIT

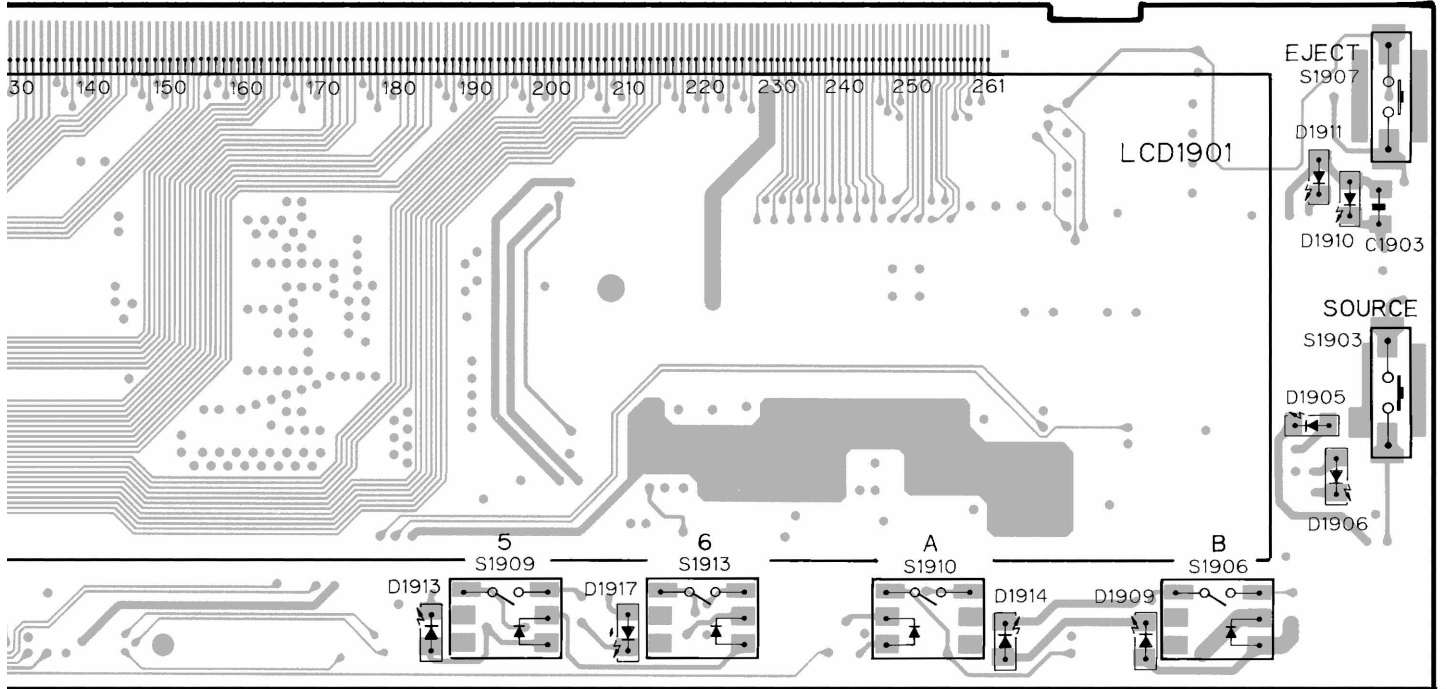
C KEYBOARD UNIT
IC IC1901



C KEYBOARD UNIT
IC, Q Q1901 VR1901 IC1905
ADJ

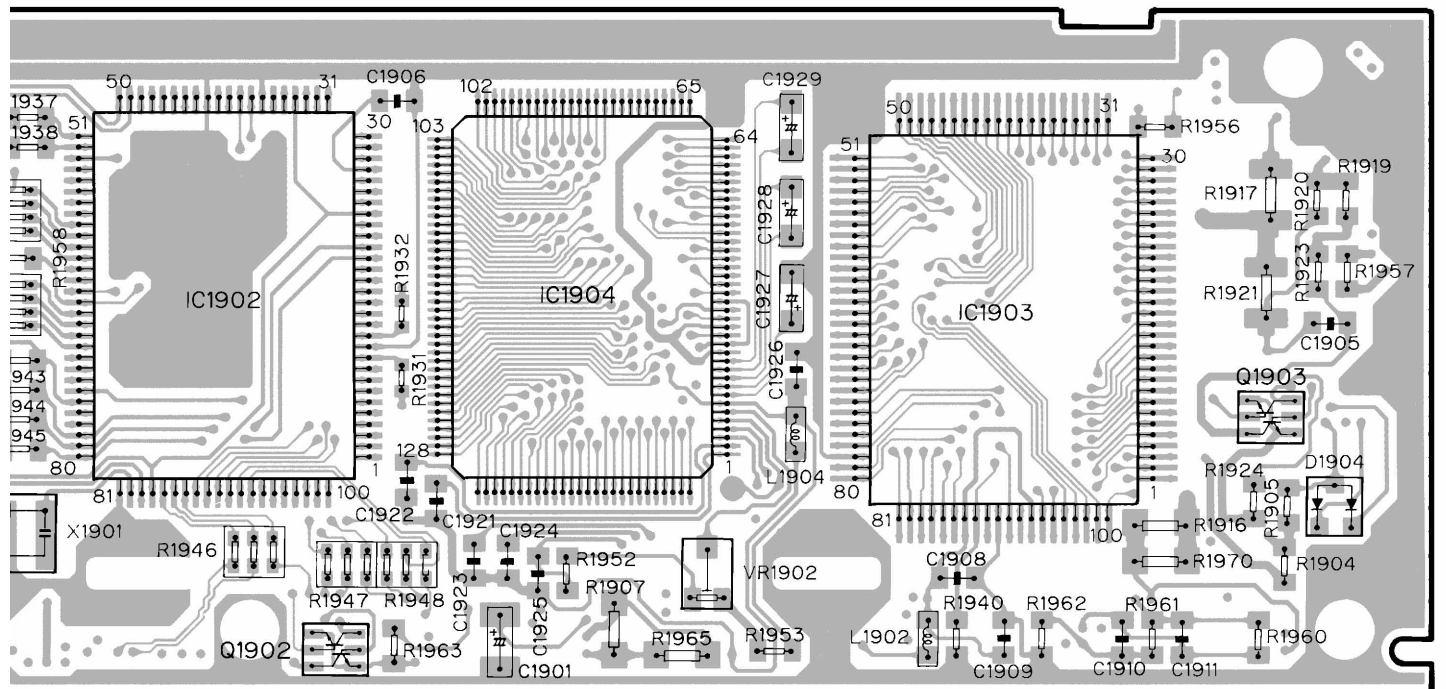


SIDE A



SIDE B

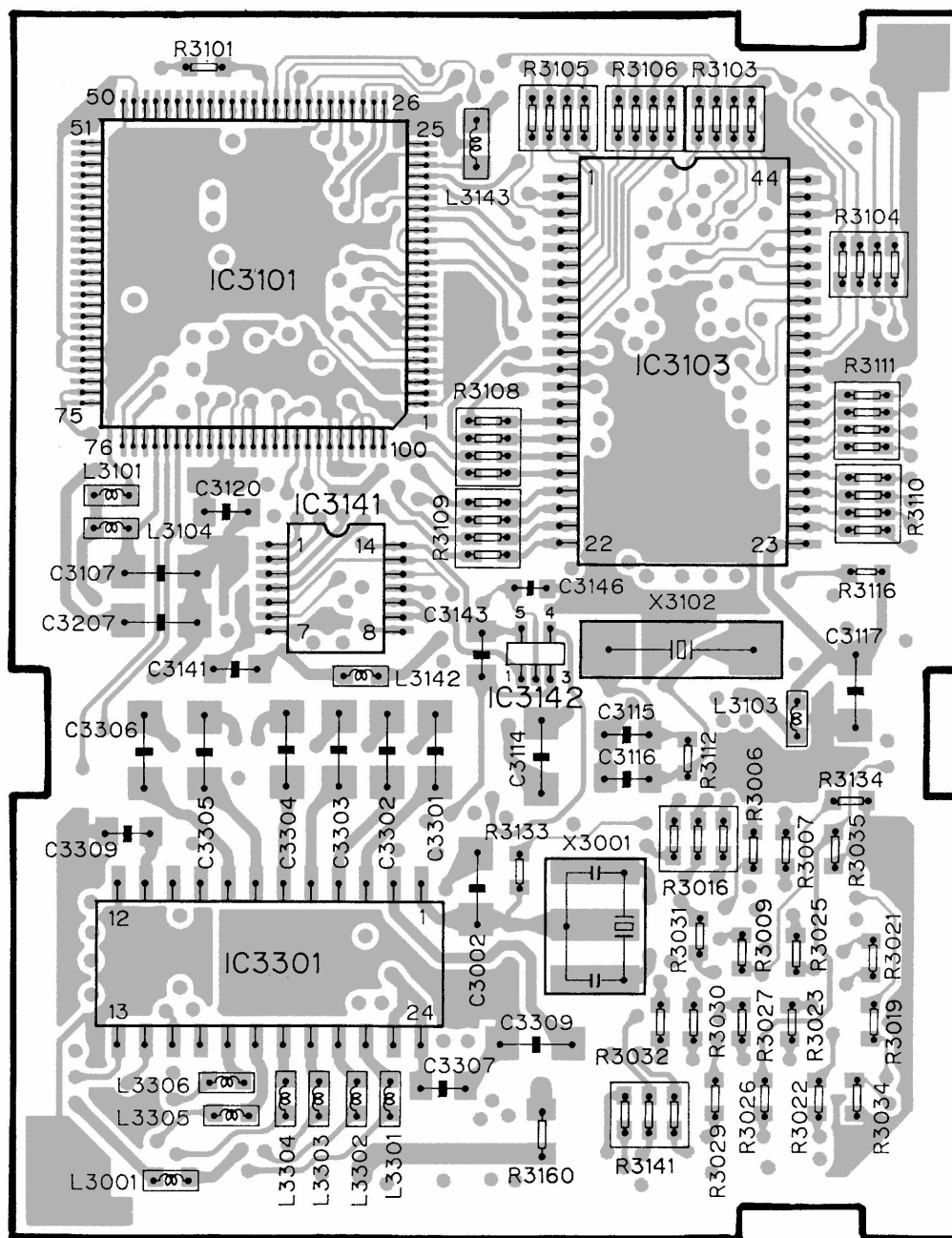
IC1902 Q1902 IC1904 IC1903 Q1903
VR1902



4.5 DSP UNIT

SIDE A

F DSP UNIT



IC
IC3101
IC3103
IC3141
IC3142
IC3301

A

F

A

2

4.6 ASL UNIT

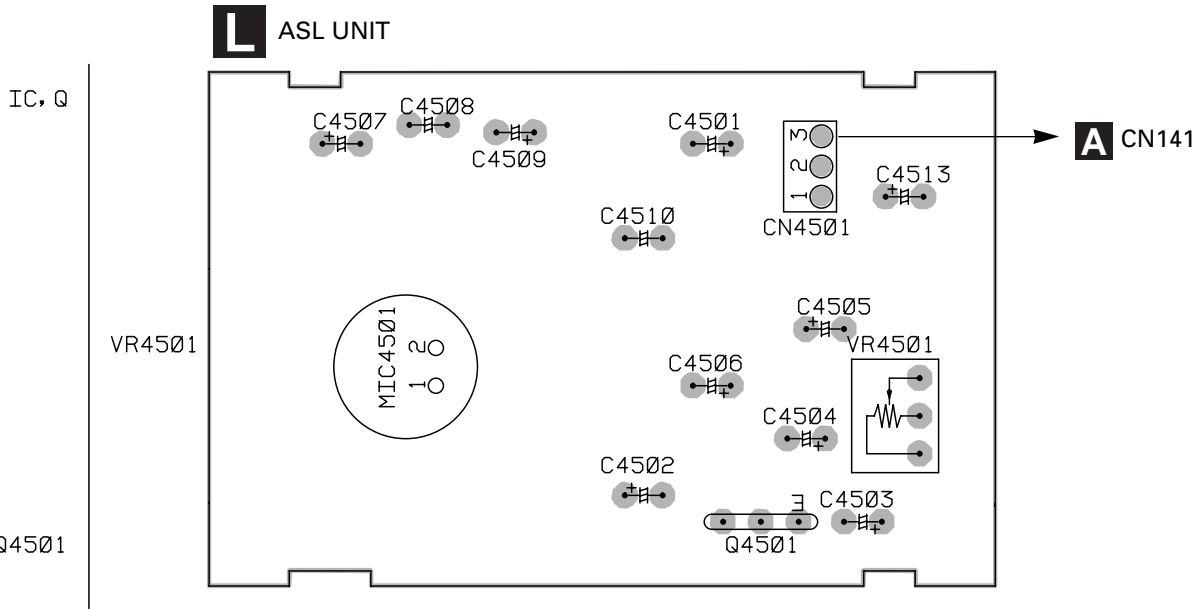
SIDE A

A

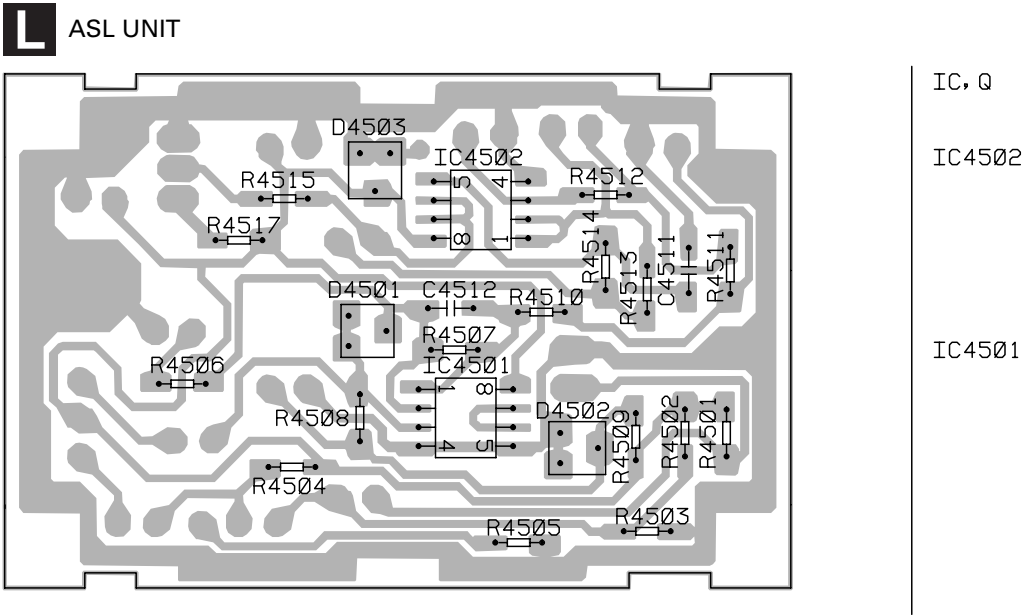
B

C

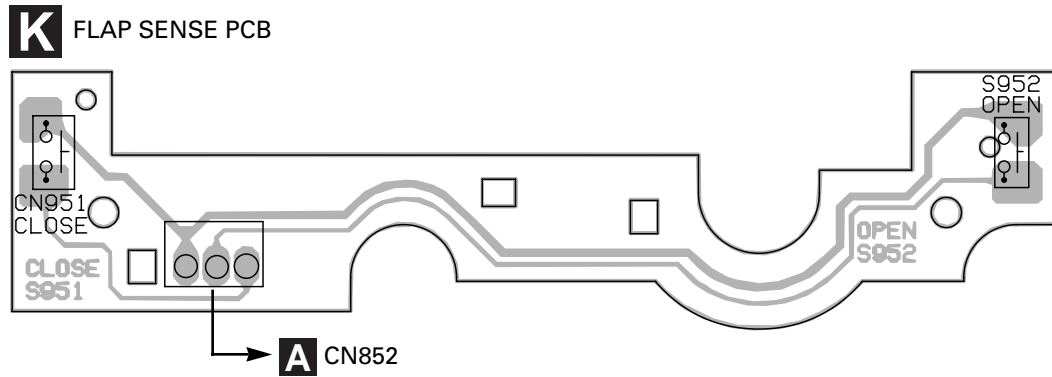
D



SIDE B



4.7 FLAP SENSE PCB, MICROPHONE JACK UNIT

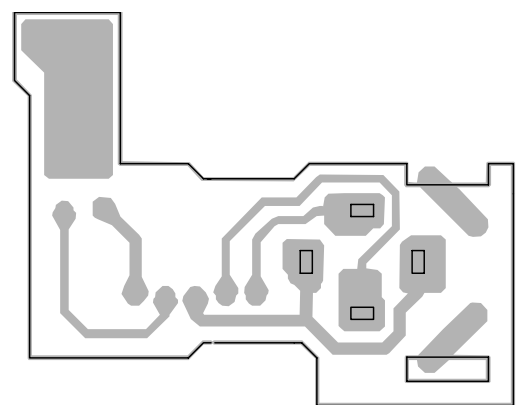
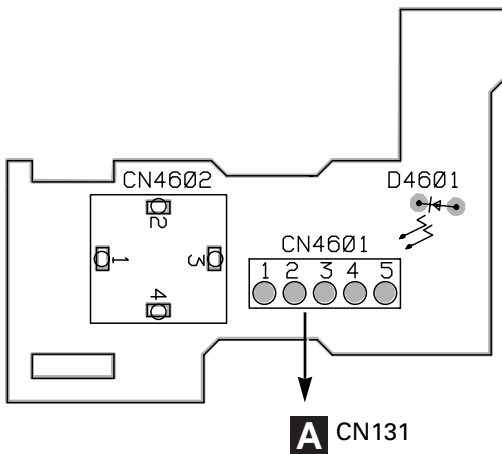


SIDE A

SIDE B

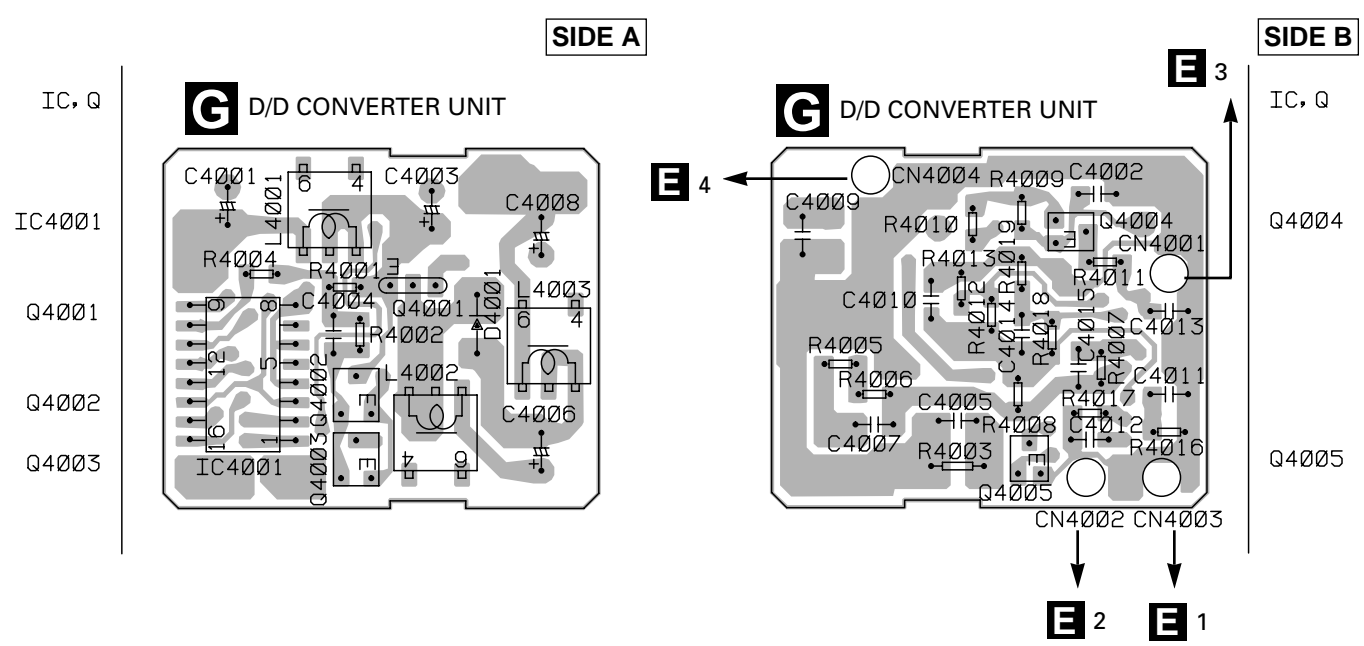
M MICROPHONE JACK UNIT

M MICROPHONE JACK UNIT



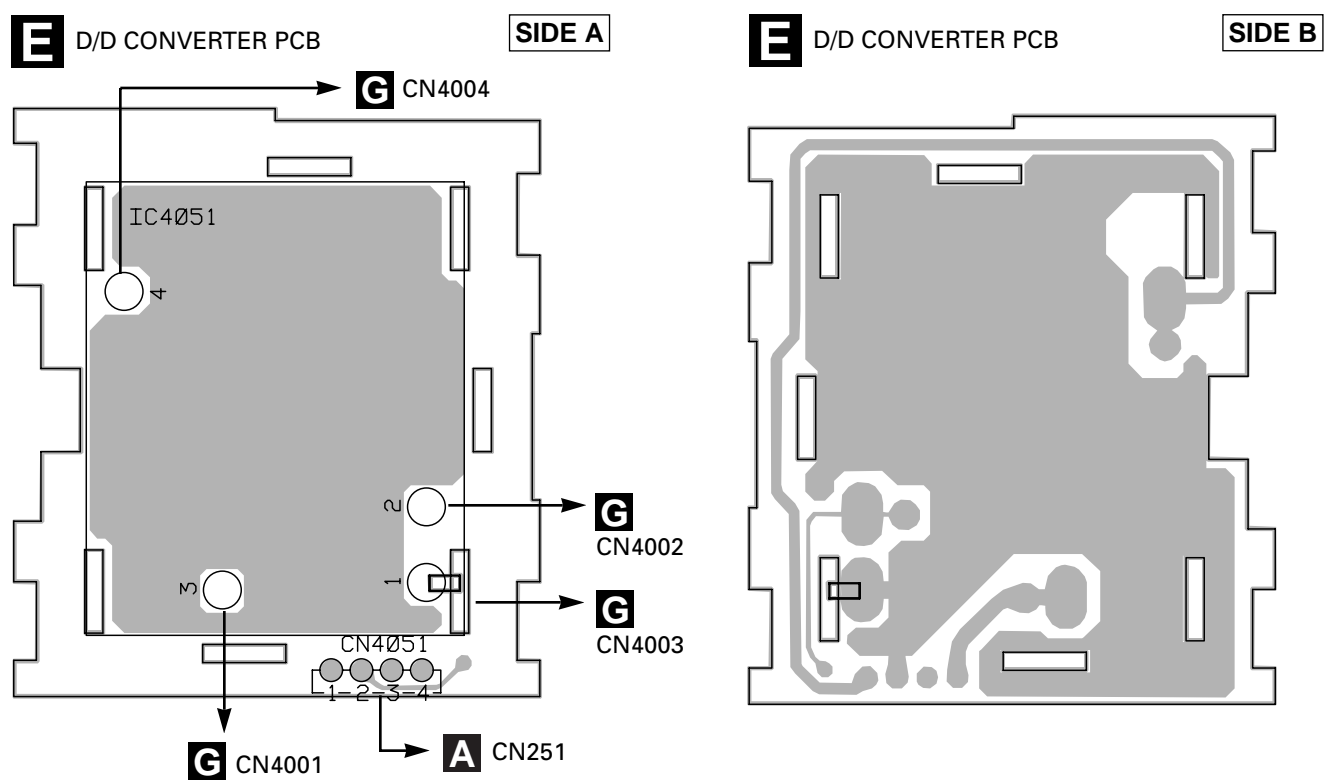
4.8 D/D CONVERTER UNIT, D/D CONVERTER PCB (DEX-P99R/EW)

A



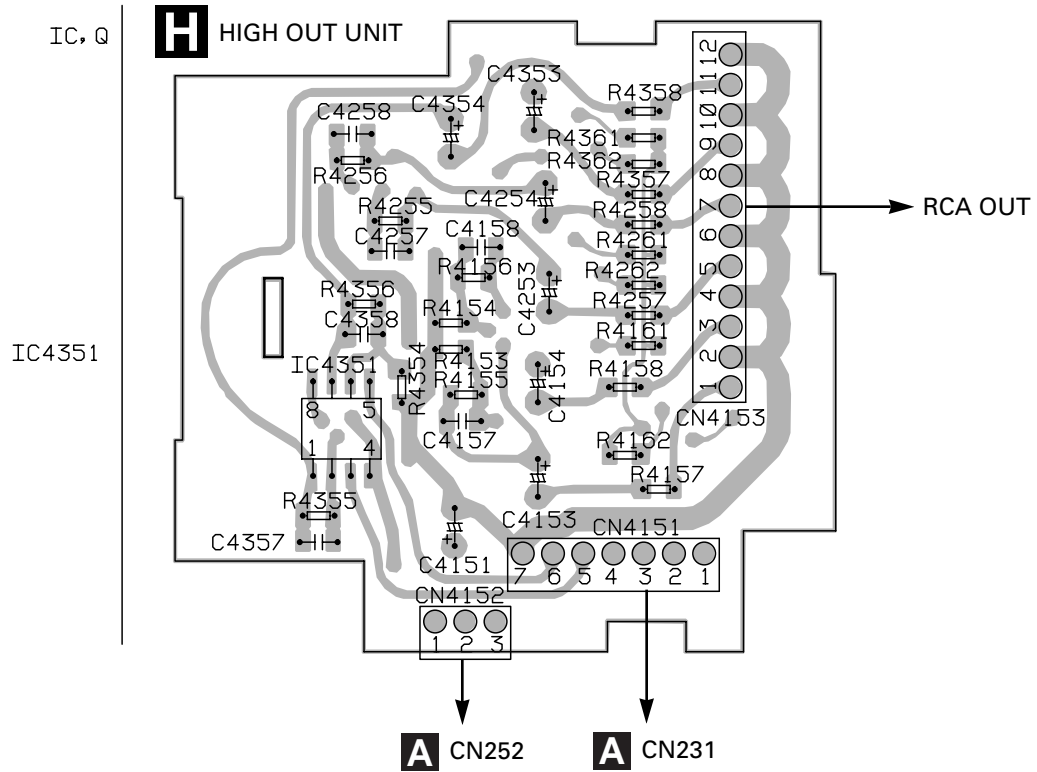
C

D



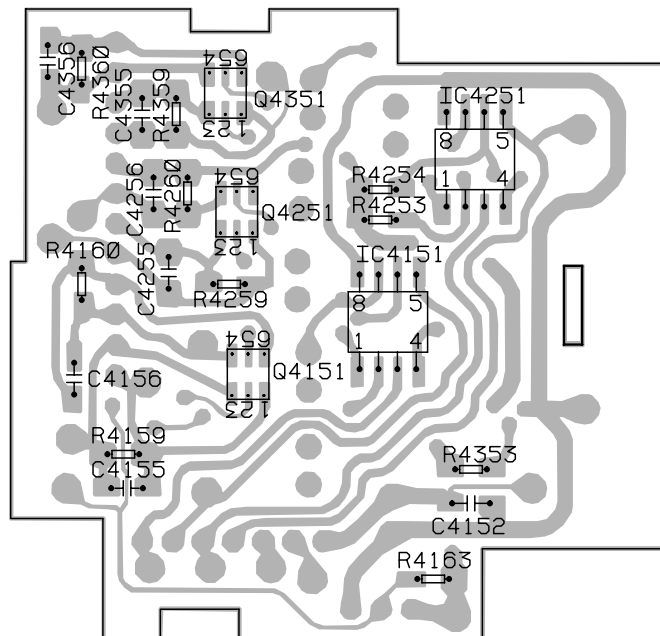
4.9 HIGH OUT UNIT (DEX-P99R/EW)

SIDE A



SIDE B

H HIGH OUT UNIT



5. ELECTRICAL PARTS LIST

NOTES:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○○J,RS1/○○S○○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
B Unit Number : CWE1416 Unit Name : FM/AM Tuner Unit		R 15	RS1/16S271J
		R 16	RS1/16S104J
		R 17	RS1/16S332J
		R 18	RS1/16S332J
		R 31	RS1/16S470J
MISCELLANEOUS			
IC 1 IC	PA4023B		
IC 2 IC	PA4024A	R 32	RS1/16S822J
Q 1 Transistor	2SC2412K	R 33	RS1/16S822J
Q 2 Transistor	DTC124EU	R 34	RS1/16S331J
Q 3 FET	3SK263	R 35	RS1/16S331J
		R 51	RS1/16S271J
Q 31 Transistor	2SC2412K		
Q 154 Transistor	DTC124EU	R 52	RS1/16S560J
Q 165 Transistor	2SC2412K	R 55	RS1/16S102J
Q 201 FET	2SK932	R 56	RS1/16S823J
Q 202 Transistor	2SC2412K	R 61	RS1/16S392J
		R 62	RS1/16S393J
Q 203 Transistor	DTC124EU		
D 4 Diode	1SV250	R 101	RS1/16S272J
D 5 Diode	KV1410-F1	R 102	RS1/16S682J
D 7 Diode	KV1410-F1	R 103	RS1/16S333J
D 8 Diode	KV1410-F1	R 104	RS1/16S334J
		R 105	RS1/16S683J
D 201 Diode	MA157		
D 202 Diode	MA157	R 107	RS1/16S222J
D 231 Diode	SVC253	R 151	RS1/16S222J
L 2 Coil	CTC1108	R 152	RS1/16S393J
L 3 Inductor	LCTB2R2K2125	R 154	RS1/16S104J
		R 155	RS1/16S273J
L 4 Coil	CTC1108		
L 5 Coil	CTC1107	R 156	RS1/16S243J
L 6 Inductor	LCTBR15K1608	R 157	RS1/16S203J
L 51 Ferri-Inductor	LAU150K	R 160	RS1/16S222J
L 201 Ferri-Inductor	LAU4R7K	R 161	RS1/16S563J
		R 162	RS1/16S105J
L 202 Ferri-Inductor	LAU330K		
L 203 Inductor	CTF1287	R 163	RS1/16S222J
L 208 Inductor	LAU121K	R 202	RS1/16S223J
L 231 Inductor	LCTA3R3J3225	R 203	RS1/16S225J
T 31 Coil	CTE1116	R 204	RS1/16S103J
		R 206	RS1/16S220J
T 51 Coil	CTC1136		
TC 1	CCL1046	R 207	RS1/16S101J
CF 51 Ceramic Filter	CTF1292	R 208	RS1/16S102J
CF 52 Ceramic Filter	CTF1292	R 209	RS1/16S471J
CF 53 Ceramic Filter	CTF1292	R 214	RS1/16S822J
		R 215	RS1/16S822J
CF 232 Ceramic Filter	CTF1348		
X 151 Resonator 918.5Hz	CSS1365	R 217	RS1/16S102J
X 231 Crystal Resonator 10.26MHz	CSS1111	R 231	RS1/16S272J
VR 154 Semi-fixed 150kΩ(B)	CCP1213	R 232	RS1/16S473J
AR 1 (DSP-201M-A11F)	GGC1326	R 237	RS1/16S103J
		R 238	RS1/16S104J
RESISTORS		R 239	RS1/16S104J
R 1	RS1/16S0R0J	R 240	RS1/16S332J
R 4	RS1/16S154J	R 241	RS1/16S202J
R 5	RS1/16S391J	R 243	RS1/16S123J
R 6	RS1/16S223J	R 244	RS1/16S103J
R 7	RS1/16S123J		
		R 247	RS1/16S123J
R 8	RS1/16S332J		
R 9	RS1/16S473J	CAPACITORS	
R 10	RS1/16S223J	C 1	CCSQCH6R0D50
R 11	RS1/16S124J	C 2	CCSRCK2R0C50
R 13	RS1/16S563J	C 4	CCSRCH820J50
		C 6	CCSRCH820J50
		C 8	CKSRYB103K25

[illegible]

====Circuit Symbol and No.==Part Name			Part No.	====Circuit Symbol and No.==Part Name			Part No.
R	706		RS1/16S681J	IC	851	IC	BA6288FS
R	707		RS1/16S681J	IC	871	IC	NJM78M05FA
R	708		RS1/16S681J	IC	941	IC	PA2024A
R	709		RS1/16S681J	IC	971	IC	S-80730ANDT
R	711		RS1/16S471J	Q	101	Transistor	2SA1162
R	712		RS1/16S471J	Q	102	Transistor	UN2212
R	713		RS1/16S471J	Q	131	Transistor	2SC2712
R	714		RS1/16S102J	Q	132	Transistor	IMD2A
R	717		RS1/16S0R0J	Q	151	Transistor	2SD1757K
R	718		RS1/16S102J	Q	152	Transistor	2SD1757K
R	901		RS1/16S302J	Q	153	Transistor	IMH3A
CAPACITORS			Q	154	Transistor	UN2111	
C	101		CEVL101M6R3	Q	171	Transistor	DTC314TK
C	102		CKSQYB104K16	Q	172	Transistor	DTC314TK
C	103		CEVL470M6R3	Q	231	Transistor	FMG13
C	104		CKSQYB334K16	Q	232	Transistor	FMG13
C	105		CCSRCH330J50	Q	233	Transistor	FMG13
C	106		CKSRYB103K25	Q	261	Transistor	IMD2A
C	107		CEVL4R7M35	Q	301	Transistor	UN2212
C	108		CKSRYB273K25	Q	302	Transistor	UN2212
C	109		CCSRCH101J50	Q	401	Transistor	2SC2712
C	110		CKSQYB104K16	Q	402	Transistor	2SC2712
C	111		CKSRYB332K50	Q	403	Transistor	IMD2A
C	112		CKSRYB473K16	Q	551	Transistor	DTC143TK
C	113		CKSRYB103K25	Q	601	Transistor	UN2111
C	114		CKSRYB391K50	Q	602	Transistor	UN2111
C	115		CCSRCH121J50	Q	651	Transistor	UN2112
C	116		CKSRYB682K25	Q	681	Transistor	2SA1162
C	117		CKSRYB333K16	Q	682	Transistor	UN2212
C	118		CKSQYB334K16	Q	683	Transistor	2SC2712
C	119		CKSQYB334K16	Q	684	Transistor	2SC2712
C	120		CKSQYB334K16	Q	685	Transistor	2SC2712
C	121		CKSQYB334K16	Q	802	Transistor	2SC2712
C	122		CKSQYB104K16	Q	803	Transistor	UN2211
C	123		CKSRYB472K50	Q	804	Transistor	2SD1760F5
C	124		CKSQYB104K16	Q	805	Transistor	UN2111
C	125		CCSRCH6R0D50	Q	806	Transistor	2SB1238
C	126		CKSRYB153K25	Q	807	Transistor	2SB1238
C	127		CCSRCH102J25	Q	808	Transistor	DTC143EK
C	201		CKSQYB334K16	Q	810	Transistor	2SC2712
C	202		CKSQYB104K16	Q	811	Transistor	2SC2712
C	203		CKSQYB104K16	Q	812	Transistor	DTA144EK
C	204		CKSRYB471K50	Q	851	Transistor	2SD1760F5
C	303		CEVL470M16	Q	852	Transistor	UN2111
C	305		CKSRYB103K25	Q	853	Transistor	UN2212
C	306		CKSRYB103K25	Q	871	Transistor	2SB1238
C	309		CKSYB475K10	Q	872	Transistor	DTC123EK
C	601		CEV101M6R3	Q	911	Transistor	2SD1760F5
C	602		CKSQYB104K16	Q	913	Transistor	IMD2A
C	701		CEV100M25	Q	921	Transistor	2SB1243
C	702		CKSQYB334K16	Q	922	Transistor	UN2212
C	703	22μF/6.3V	CCH1300	Q	931	Transistor	2SB1243
C	704		CEVL101M6R3	Q	932	Transistor	UN2212
C	901		CKSRYB221K50	Q	951	Transistor	UN2211
				Q	952	Transistor	IMX1
				Q	961	Transistor	2SA1162
				Q	971	Transistor	2SC2712
				Q	991	Transistor	IMD2A
				Q	992	Transistor	2SD2396
				D	131	Diode	MA3039(L)
				D	231	Diode	MA152WA
				D	232	Diode	MA152WA
				D	233	Diode	MA152WA
				D	261	Diode	MA152WK
				D	262	Diode	MA152WK
				D	263	Diode	MA152WK
				D	401	Diode	MA152WK
				D	402	Diode	MA152WK
				D	551	Diode	MA3047(M)
				D	803	Diode	MA3062(M)
IC	101	IC	CA0008AM	D	231	Diode	MA152WA
IC	102	IC	TA2050S	D	232	Diode	MA152WA
IC	171	IC	BA3131FS	D	233	Diode	MA152WA
IC	301	IC	TDA7386	D	261	Diode	MA152WK
IC	401	IC	PM2007A	D	262	Diode	MA152WK
IC	551	IC	PMW001B	D	263	Diode	MA152WK
IC	552	IC	TA75S393F	D	401	Diode	MA152WK
IC	601	IC	PD4905A	D	402	Diode	MA152WK
IC	651	IC	PD4931A	D	551	Diode	MA3047(M)
IC	671	IC	PD0236AM	D	803	Diode	MA3062(M)

A

Unit Number : CWM5696(DEH-P945R/EW)
Unit Name : Tuner Amp Unit

MISCELLANEOUS

====Circuit Symbol and No.==Part Name			Part No.	====Circuit Symbol and No.==Part Name			Part No.
D	804	Diode	DA204K	R	116		RS1/10S332J
D	805	Diode	DA204K	R	117		RS1/10S562J
D	806	Diode	DA204K	R	118		RS1/10S472J
D	807	Diode	DA204K	R	131		RS1/10S103J
D	808	Diode	MA3062(M)	R	132		RS1/10S223J
D	809	Diode	DA204K	R	133		RS1/10S473J
D	810	Diode	ERA15-02VH	R	134		RS1/10S104J
D	851	Diode	MA3075(H)	R	135		RS1/10S222J
D	852	Diode	1SS133	R	136		RS1/10S561J
D	853	Diode	1SS133	R	151		RS1/10S272J
D	871	Diode	MA152WK	R	152		RS1/10S272J
D	901	Diode	ERA15-02VH	R	155		RS1/10S222J
D	902	Diode	ERA15-02VH	R	156		RS1/10S222J
D	911	Diode	HZS6L(B1)	R	157		RS1/10S224J
D	912	Diode	ERA15-02VH	R	158		RS1/10S224J
D	921	Diode	ERA15-02VH	R	159		RS1/10S223J
D	922	Diode	ERA15-02VH	R	160		RS1/10S223J
D	931	Diode	ERA15-02VH	R	171		RS1/10S393J
D	932	Diode	ERA15-02VH	R	172		RS1/10S393J
D	951	Diode	ERA15-02VH	R	173		RS1/10S752J
D	952	Diode	HZS7L(C3)	R	174		RS1/10S752J
D	953	Diode	HZS7L(A1)	R	175		RS1/10S222J
D	961	Diode	MA152WK	R	176		RS1/10S222J
D	971	Diode	MA152WK	R	177		RS1/10S473J
D	991	Diode	HZS9L(B1)	R	178		RS1/10S473J
L	101	Inductor	LAU3R3K	R	179		RS1/10S513J
L	141	Inductor	CTF1420	R	180		RS1/10S513J
L	221	Inductor	CTF1295	R	181		RS1/10S563J
L	222	Inductor	LCTB2R2K2125	R	182		RS1/10S563J
L	223	Ferri-Inductor	LAU1R0M	R	184		RS1/10S103J
L	401	Ferri-Inductor	LAU2R2K	R	185		RS1/10S224J
L	403	Inductor	LAU2R2K	R	186		RS1/10S102J
L	551	Inductor	CTF1295	R	187		RS1/10S102J
L	601	High Loss Inductor	CTF1410	R	189		RS1/10S104J
L	602	High Loss Inductor	CTF1410	R	190		RS1/10S104J
L	603	High Loss Inductor	CTF1410	R	201		RS1/10S472J
L	651	High Loss Inductor	CTF1410	R	202		RS1/10S472J
L	652	Inductor	CTF1295	R	203		RS1/10S472J
L	671	Inductor	CTF1295	R	204		RS1/10S472J
L	801	High Loss Inductor	CTF1410	R	205		RS1/10S223J
L	961	Ferri-Inductor	LAU2R2K	R	206		RS1/10S223J
TH	651	Thermistor	CCX1037	R	207		RS1/10S331J
X	401	Crystal Resonator 7.200MHz	CSS1379	R	208		RS1/10S331J
X	501	Crystal Resonator 4.332MHz	CSS1056	R	209		RS1/10S331J
X	601	Resonator 12.58291MHz	CSS1402	R	210		RS1/10S331J
X	651	Resonator 4.19MHz	CSS1436	R	227	(RN1/10SE4702D)	GGC1316
S	601	Slide Switch(PRO/STD)	CSH1048	R	228	(RN1/10SE4702D)	GGC1316
IL	801	Lamp 14V40mA	CEL1359	R	229		RS1/16S102J
VR	551	Semi-fixed 22kΩ(B)	CCP1129	R	231		RS1/10S821J
		DSP Unit	CWX2214	R	232		RS1/10S821J
		FM/AM Tuner Unit	CWE1416	R	233		RS1/10S821J
BZ	601	Buzzer	CPV1012	R	234		RS1/10S821J
FU	801	IC Protector 0.4A	ICP-N10	R	235		RS1/10S821J
				R	236		RS1/10S821J
				R	237		RS1/10S223J
RESISTORS							
R	101		RS1/10S620J	R	238		RS1/10S223J
R	102		RS1/10S101J	R	239		RS1/10S223J
R	103		RS1/10S101J	R	240		RS1/10S223J
R	104		RS1/10S222J	R	241		RS1/10S223J
R	105		RS1/10S103J	R	242		RS1/10S223J
R	106		RS1/10S102J	R	261		RS1/10S223J
R	107		RS1/10S102J	R	262		RS1/10S102J
R	108		RS1/10S473J	R	301		RS1/10S103J
R	109		RS1/10S473J	R	302		RS1/10S331J
R	110		RS1/10S223J	R	303		RS1/10S103J
R	111		RS1/10S181J	R	304		RS1/10S103J
R	112		RS1/10S102J	R	402		RS1/10S103J
R	113		RS1/10S102J	R	403		RS1/10S0R0J
R	114		RS1/10S181J	R	404		RS1/10S472J
R	115		RS1/10S223J	R	405		RS1/10S222J

DEH-P945R,DEX-P99R

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 406	RS1/10S682J	R 628	RS1/16S473J
R 407	RS1/10S102J	R 631	RS1/10S102J
R 408	RS1/10S472J	R 632	RS1/10S202J
R 409	RS1/10S682J	R 636	RA3C681J
R 410	RS1/10S561J	R 637	RS1/10S473J
R 411	RS1/10S103J	R 638	RS1/10S473J
R 412	RS1/10S222J	R 640	RS1/10S473J
R 413	RS1/10S152J	R 641	RS1/10S473J
R 414	RS1/10S392J	R 642	RS1/10S102J
R 415	RS1/10S392J	R 644	RS1/10S473J
R 416	RS1/10S272J	R 645	RS1/10S473J
R 417	RS1/10S0R0J	R 646	RS1/10S473J
R 418	RS1/10S222J	R 647	RS1/10S473J
R 419	RS1/10S222J	R 648	RS1/10S473J
R 420	RS1/10S562J	R 649	RS1/10S221J
R 421	RS1/10S222J	R 650	RS1/10S682J
R 422	RS1/10S102J	R 655	RS1/10S222J
R 424	RS1/10S222J	R 656	RS1/10S222J
R 425	RS1/10S105J	R 657	RS1/10S473J
R 426	RS1/10S473J	R 658	RS1/10S473J
R 427	RS1/10S562J	R 659 (RN1/10SE9102D)	GGC1317
R 428	RS1/10S472J	R 662	RS1/10S222J
R 429	RS1/10S224J	R 663	RS1/10S473J
R 430	RS1/10S0R0J	R 664	RS1/10S103J
R 432	RS1/10S681J	R 665 (RN1/10SE2402D)	GGC1318
R 455	RS1/10S0R0J	R 667	RS1/10S0R0J
R 502	RS1/10S681J	R 671	RS1/10S681J
R 504	RS1/10S105J	R 672	RS1/10S102J
R 507	RS1/10S222J	R 673	RS1/10S102J
R 552	RS1/10S102J	R 674	RS1/10S102J
R 553	RS1/10S102J	R 675	RS1/10S681J
R 554	RS1/10S102J	R 676	RS1/10S681J
R 555	RS1/10S102J	R 677	RS1/10S681J
R 556	RS1/10S102J	R 678	RS1/10S681J
R 557	RS1/10S0R0J	R 681	RS1/8S102J
R 558	RS1/10S0R0J	R 682	RS1/8S102J
R 559	RS1/10S222J	R 683	RS1/8S102J
R 560	RS1/10S222J	R 685	RS1/10S103J
R 561	RS1/10S684J	R 686	RS1/10S103J
R 562	RS1/10S681J	R 687	RS1/10S223J
R 563	RS1/10S562J	R 688	RS1/10S223J
R 564	RS1/10S102J	R 689	RS1/10S223J
R 565	RS1/10S0R0J	R 690	RS1/10S272J
R 566	RD1/4PU151J	R 691	RS1/10S223J
R 567	RS1/10S562J	R 692	RS1/10S272J
R 568	RS1/10S333J	R 693	RS1/10S223J
R 569	RS1/10S103J	R 694	RS1/10S272J
R 570	RS1/10S102J	R 695	RS1/10S473J
R 601	RS1/10S473J	R 696	RS1/10S473J
R 602	RS1/10S473J	R 697	RS1/10S473J
R 603	RS1/10S223J	R 698	RS1/8S331J
R 607	RS1/10S473J	R 700	RS1/10S274J
R 608	RS1/10S473J	R 801	RD1/4PU102J
R 609	RS1/16S473J	R 802	RS1/8S103J
R 610	RS1/10S102J	R 803	RS1/10S224J
R 611	RS1/10S473J	R 804	RS1/10S222J
R 612	RS1/10S473J	R 805	RD1/4PU102J
R 613	RS1/10S681J	R 806	RS1/10S104J
R 614	RS1/10S473J	R 807	RS1/10S222J
R 617	RS1/10S221J	R 809	RS1/10S1R0J
R 618	RS1/10S221J	R 810	RS1/10S103J
R 619	RS1/10S221J	R 811	RS1/10S104J
R 620	RS1/10S221J	R 815	RS1/10S222J
R 621	RS1/10S221J	R 816	RS1/8S222J
R 622	RS1/10S682J	R 817	RS1/10S222J
R 623	RS1/10S682J	R 818	RS1/8S222J
R 624	RS1/10S682J	R 819	RS1/8S103J
R 625	RS1/10S682J	R 820	RS2PMF330J
R 626	RS1/10S473J	R 821	RS1/8S472J
R 627	RS1/10S393J	R 830	RS1/10S102J

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 851	RD1/4PU561J	C 180	CCSQCH390J50
R 852	RS1/10S102J	C 182	CEJA1R0M50
R 853	RS1/10S102J	C 183	CEJA220M6R3
R 854	RS1/10S102J	C 184	CEJA101M10
R 855	RS1/10S102J	C 185	CEJA100M16
R 856	RS1/10S473J	C 186	CKSQYB223K50
R 857	RS1/10S473J	C 201	CEJA4R7M35
R 859	RS1/10S0R0J	C 202	CEJA4R7M35
R 871	RS1/10S102J	C 203	CEJA100M16
R 872	RD1/4PU102J	C 204	CEJA100M16
R 873	RS1/10S473J	C 205	CKSQYB104K16
R 911	RS1/8S0R0J	C 206	CKSQYB104K16
R 912	RS1/10S392J	C 207	CEJA100M16
R 913	RS1/10S752J	C 208	CEJA100M16
R 921	RS1/10S472J	C 217	CCSQCH221J50
R 922	RD1/4PU221J	C 218	CCSQCH101J50
R 923	RD1/4PU221J	C 227	CKSQYB103K50
R 931	RS1/10S472J	C 229	CEJANP100M10
R 932	RD1/4PU221J	C 230	CKSYB475K10
R 933	RD1/4PU221J	C 231	CEJA4R7M35
R 941	RS1/10S102J	C 232	CEJA4R7M35
R 942	RS1/10S102J	C 233	CEJA4R7M35
R 943	RS1/10S472J	C 234	CEJA4R7M35
R 951	RS1/10S103J	C 235	CEJA100M16
R 952	RS1/10S103J	C 236	CEJA100M16
R 953	RS1/10S473J	C 237	CCSQCH221J50
R 954	RS1/10S472J	C 238	CCSQCH221J50
R 955	RS1/10S473J	C 239	CCSQCH221J50
R 956	RS1/10S103J	C 240	CCSQCH221J50
R 961	RS1/8S153J	C 241	CCSQCH221J50
R 962	RS1/10S472J	C 242	CCSQCH221J50
R 963	RS1/10S472J	C 301	CKSYB224K16
R 964	RS1/10S102J	C 302	CKSYB224K16
R 971	RS1/10S822J	C 303	CKSYB224K16
R 973	RS1/10S102J	C 304	CKSYB224K16
R 974	RS1/10S473J	C 305	CKSYB105K16
R 975	RS1/10S472J	C 306	CEHAR100M16
R 991	RD1/4PU221J	C 308	CCH1125
R 992	RS1/10S221J	C 309	CEHAR010M50
R 993	RS1/10S472J	C 310	CEHAR330M10
R 994	RS1/10S222J	C 351	CCSQCH221J50
CAPACITORS		C 352	CCSQCH101J50
C 101	CKSQYB104K16	C 353	CKSYB475K10
C 102	CKSQYB104K16	C 401	CKSQYB103K50
C 103	CEJA1R0M50	C 402	CKSQYB103K50
C 104	CEJA1R0M50	C 403	CKSQYB103K50
C 105	CEJA100M16	C 404	CKSQYB103K50
C 106	CEJA100M16	C 405	CEV220M10
C 107	CEJA1R0M50	C 406	CKSQYB103K50
C 108	CEJA1R0M50	C 407	CEV220M10
C 109	CKSQYB102K50	C 408	CKSQYB103K50
C 131	CKSQYB681K50	C 409	CKSQYB103K50
C 132	CEJA101M10	C 410	CEV220M6R3
C 141	CCSQCH101J50	C 411	CKSQYB103K50
C 151	CKSQYB223K50	C 413	CCH1250
C 152	CKSQYB223K50	C 414	CKSQYB103K50
C 153	CEV1R0M50	C 415	CKSQYB103K50
C 154	CEV1R0M50	C 416	CKLSR473K16
C 171	CEJA1R0M50	C 417	CCH1250
C 172	CEJA1R0M50	C 418	CKSQYB103K50
C 173	CEV4R7M25	C 419	CEVR47M50
C 174	CEV4R7M25	C 420	CCSQCH150J50
C 175	CCSQCH820J50	C 421	CCSQCH150J50
C 176	CCSQCH820J50	C 422	CKSQYB103K50
C 177	CCSQCH390J50	C 423	CKSQYB103K50
C 178	CCSQCH390J50	C 424	CCSQCH101J50
C 179	CCSQCH390J50	C 425	CKSQYB473K16
		C 426	CEV220M6R3
		C 427	CKSQYB103K50
		C 428	CKSQYB103K50

====Circuit Symbol and No.==Part Name		Part No.	====Circuit Symbol and No.==Part Name		Part No.	
C	429	CKSQYB471K50	C	951	CKSQYB105K10	
C	430	CKSQYB103K50	C	952	CCSQCH101J50	
C	431	CKSQYB223K50	C	971	CEJA2R2M50	
C	433	CKSQYB103K50	C	972	CKSQYB102K50	
C	434	CKSQYB223K50	C	973	CKSQYB104K16	
C	435	CKSQYB223K50	C	991	CKSQYB473K16	
C	503	CCSQCH270J50	C	992	CKSQYB102K50	
C	504	CCSQCH270J50	C	993	CEJA101M10	
C	554	CKSQYB103K50	<div><div>A</div><div>Unit Number : CWM5695(DEX-P99R/EW) Unit Name : Tuner Amp Unit</div></div>			
C	555	CKSQYB103K50				
C	556	CKSQYB472K50	MISCELLANEOUS			
C	557	CKSQYB104K16	IC	101	IC	CA0008AM
C	558	CKSQYB105K10	IC	102	IC	TA2050S
C	559	CKSQYB104K16	IC	171	IC	BA3131FS
C	560	CKSQYB222K50	IC	401	IC	PM2007A
C	561	CCSQCH101J50	IC	551	IC	PMW001B
C	562	CEJA100M16	IC	552	IC	TA75S393F
C	563	CKSQYB223K50	IC	601	IC	PD4905A
C	564	CKSQYB104K16	IC	651	IC	PD4931A
C	565	CKSQYB223K50	IC	671	IC	PD0236AM
C	601	CCSQCH200J50	IC	851	IC	BA6288FS
C	602	CCSQCH200J50	IC	871	IC	NJM78M05FA
C	604	CEJA101M10	IC	941	IC	PA2024A
C	606	CCSQCH101J50	IC	971	IC	S-80730ANDT
C	608	CCSQCH101J50	Q	101	Transistor	2SA1162
C	609	CEJA100M16	Q	102	Transistor	UN2212
C	610	CKSQYB104K16	Q	131	Transistor	2SC2712
C	615	CCSQCH101J50	Q	132	Transistor	IMD2A
C	616	CCSQCH101J50	Q	151	Transistor	2SD1757K
C	617	CCSQCH101J50	Q	152	Transistor	2SD1757K
C	618	CCSQCH101J50	Q	153	Transistor	IMH3A
C	619	CCSQCH101J50	Q	154	Transistor	UN2111
C	620	CCSRCH101J50	Q	171	Transistor	DTC314TK
C	651	CKSYB475K10	Q	172	Transistor	DTC314TK
C	653	CKSQYB102K50	Q	231	Transistor	FMG13
C	671	CKSQYB103K50	Q	232	Transistor	FMG13
C	672	CEJA100M16	Q	233	Transistor	FMG13
C	683	CKSQYB103K50	Q	251	Transistor	DTA143EK
C	684	CKSQYB103K50	Q	252	Transistor	UN2211
C	685	CKSQYB103K50	Q	253	Transistor	IMD2A
C	686	CKSQYB473K16	Q	261	Transistor	IMD2A
C	803	CKSQYB103K50	Q	302	Transistor	UN2212
C	806	CKSYB475K10	Q	401	Transistor	2SC2712
C	807	CCSQCH101J50	Q	402	Transistor	2SC2712
C	808	CEJA101M16	Q	403	Transistor	IMD2A
C	809	CCSQCH101J50	Q	551	Transistor	DTC143TK
C	811	CCSCH101J50	Q	601	Transistor	UN2111
C	851	CKSQYB103K50	Q	602	Transistor	UN2211
C	852	CKSYB475K10	Q	651	Transistor	UN2112
C	853	CKSQYB102K50	Q	681	Transistor	2SA1162
C	854	CCSQCH101J50	Q	682	Transistor	UN2212
C	855	CCSQCH101J50	Q	683	Transistor	2SC2712
C	856	CKSQYB102K50	Q	684	Transistor	2SC2712
C	871	470μF/16V	Q	685	Transistor	2SC2712
C	872	CCH1183	Q	802	Transistor	2SC2712
C	873	CEJA100M16	Q	803	Transistor	UN2211
C	874	CKSQYB103K50	Q	804	Transistor	2SD1760F5
C	876	CKSQYB102K50	Q	805	Transistor	UN2111
C	911	1500μF/16V	Q	806	Transistor	2SB1238
C	912	CASA4R7M10	Q	807	Transistor	2SB1238
C	913	CCH1312	Q	808	Transistor	DTC143EK
C	914	CKSQYB103K50	Q	810	Transistor	2SC2712
C	921	CASA470M10	Q	811	Transistor	2SC2712
C	941	CKSQYB103K50	Q	812	Transistor	DTA144EK
C	942	330μF/10V	Q	851	Transistor	2SD1760F5
C	943	CCH1181	Q	852	Transistor	UN2111
C	944	CEJA470M10				
C	945	CEJA1R0M50				
C	946	CEJA101M10				
C	947	CEJA470M10				
C	947	CKSQYB102K50				

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
Q 853 Transistor	UN2212	X 601 Resonator 12.58291MHz	CSS1402
Q 871 Transistor	2SB1238	X 651 Resonator 4.19MHz	CSS1436
Q 872 Transistor	DTC123EK	S 601 Slide Switch(PRO/STD)	CSH1048
Q 911 Transistor	2SD1760F5	IL 801 Lamp 14V40mA	CEL1359
Q 913 Transistor	IMD2A	VR 551 Semi-fixed 22kΩ(B)	CCP1129
Q 921 Transistor	2SB1243		CWX2215
Q 922 Transistor	UN2212		CWX2214
Q 931 Transistor	2SB1243		CWE1416
Q 932 Transistor	UN2212	BZ 601 Buzzer	CPV1012
Q 951 Transistor	UN2211	FU 801 IC Protector 0.4A	ICP-N10
Q 952 Transistor	IMX1	RESISTORS	
Q 961 Transistor	2SA1162	R 101	RS1/10S620J
Q 971 Transistor	2SC2712	R 102	RS1/10S101J
Q 991 Transistor	IMD2A	R 103	RS1/10S101J
Q 992 Transistor	2SD2396	R 104	RS1/10S222J
		R 105	RS1/10S103J
D 131 Diode	MA3039(L)		
D 231 Diode	MA152WA		
D 232 Diode	MA152WA	R 106	RS1/10S102J
D 233 Diode	MA152WA	R 107	RS1/10S102J
D 261 Diode	MA152WK	R 108	RS1/10S473J
		R 109	RS1/10S473J
D 262 Diode	MA152WK	R 110	RS1/10S223J
D 263 Diode	MA152WK		
D 401 Diode	MA152WK	R 111	RS1/10S181J
D 402 Diode	MA152WK	R 112	RS1/10S102J
D 551 Diode	MA3047(M)	R 113	RS1/10S102J
		R 114	RS1/10S181J
D 803 Diode	MA3062(M)	R 115	RS1/10S223J
D 804 Diode	DA204K		
D 805 Diode	DA204K	R 116	RS1/10S332J
D 806 Diode	DA204K	R 117	RS1/10S562J
D 807 Diode	DA204K	R 118	RS1/10S472J
		R 131	RS1/10S103J
D 808 Diode	MA3062(M)	R 132	RS1/10S223J
D 809 Diode	DA204K		
D 810 Diode	ERA15-02VH	R 133	RS1/10S473J
D 851 Diode	MA3075(H)	R 134	RS1/10S104J
D 852 Diode	1SS133	R 135	RS1/10S222J
		R 136	RS1/10S561J
D 853 Diode	1SS133	R 151	RS1/10S272J
D 871 Diode	MA152WK		
D 901 Diode	ERA15-02VH	R 152	RS1/10S272J
D 902 Diode	ERA15-02VH	R 155	RS1/10S222J
D 911 Diode	HZS6L(B1)	R 156	RS1/10S222J
		R 157	RS1/10S224J
D 912 Diode	ERA15-02VH	R 158	RS1/10S224J
D 921 Diode	ERA15-02VH		
D 922 Diode	ERA15-02VH	R 159	RS1/10S223J
D 931 Diode	ERA15-02VH	R 160	RS1/10S223J
D 932 Diode	ERA15-02VH	R 171	RS1/10S393J
		R 172	RS1/10S393J
D 951 Diode	ERA15-02VH	R 173	RS1/10S752J
D 952 Diode	HZS7L(C3)		
D 953 Diode	HZS7L(A1)	R 174	RS1/10S752J
D 961 Diode	MA152WK	R 175	RS1/10S222J
D 971 Diode	MA152WK	R 176	RS1/10S222J
		R 177	RS1/10S473J
D 991 Diode	HZS9L(B1)	R 178	RS1/10S473J
L 101 Inductor	LAU3R3K		
L 141 Inductor	CTF1420	R 179	RS1/10S513J
L 221 Inductor	CTF1295	R 180	RS1/10S513J
L 222 Inductor	LCTB2R2K2125	R 181	RS1/10S563J
		R 182	RS1/10S563J
L 223 Ferri-Inductor	LAU1R0M	R 184	RS1/10S103J
L 401 Ferri-Inductor	LAU2R2K		
L 403 Inductor	LAU2R2K	R 185	RS1/10S224J
L 551 Inductor	CTF1295	R 186	RS1/10S102J
L 601 High Loss Inductor	CTF1410	R 187	RS1/10S102J
		R 189	RS1/10S104J
L 602 High Loss Inductor	CTF1410	R 190	RS1/10S104J
L 603 High Loss Inductor	CTF1410		
L 651 High Loss Inductor	CTF1410	R 201	RS1/10S472J
L 652 Inductor	CTF1295	R 202	RS1/10S472J
L 671 Inductor	CTF1295	R 203	RS1/10S472J
		R 204	RS1/10S472J
L 801 High Loss Inductor	CTF1410	R 205	RS1/10S223J
L 961 Ferri-Inductor	LAU2R2K		
TH 651 Thermistor	CCX1037		
X 401 Crystal Resonator 7.200MHz	CSS1379		
X 501 Crystal Resonator 4.332MHz	CSS1056		

DEH-P945R,DEX-P99R

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 206	RS1/10S223J	R 565	RS1/10S0R0J
R 207	RS1/10S331J	R 566	RD1/4PU151J
R 208	RS1/10S331J	R 567	RS1/10S562J
R 209	RS1/10S331J	R 568	RS1/10S333J
R 210		R 569	RS1/10S103J
R 227 (RN1/10SE4702D)	GGC1316	R 570	RS1/10S102J
R 228 (RN1/10SE4702D)	GGC1316	R 601	RS1/10S473J
R 229	RS1/16S102J	R 602	RS1/10S473J
R 231	RS1/10S821J	R 603	RS1/10S223J
R 232	RS1/10S821J	R 607	RS1/10S473J
R 233	RS1/10S821J	R 608	RS1/10S473J
R 234	RS1/10S821J	R 609	RS1/16S473J
R 235	RS1/10S821J	R 610	RS1/10S102J
R 236	RS1/10S821J	R 611	RS1/10S473J
R 237	RS1/10S113J	R 612	RS1/10S473J
R 238	RS1/10S113J	R 613	RS1/10S681J
R 239	RS1/10S113J	R 614	RS1/10S473J
R 240	RS1/10S113J	R 617	RS1/10S221J
R 241	RS1/10S113J	R 618	RS1/10S221J
R 242	RS1/10S113J	R 619	RS1/10S221J
R 251	RS1/8S122J	R 620	RS1/10S221J
R 252	RS1/10S122J	R 621	RS1/10S221J
R 261	RS1/10S223J	R 622	RS1/10S682J
R 262	RS1/10S102J	R 623	RS1/10S682J
R 402	RS1/10S103J	R 624	RS1/10S682J
R 403	RS1/10S0R0J	R 625	RS1/10S682J
R 404	RS1/10S472J	R 626	RS1/10S473J
R 405	RS1/10S222J	R 627	RS1/10S393J
R 406	RS1/10S682J	R 629	RS1/16S473J
R 407	RS1/10S102J	R 631	RS1/10S102J
R 408	RS1/10S472J	R 632	RS1/10S202J
R 409	RS1/10S682J	R 636	RA3C681J
R 410	RS1/10S561J	R 637	RS1/10S473J
R 411	RS1/10S103J	R 638	RS1/10S473J
R 412	RS1/10S222J	R 640	RS1/10S473J
R 413	RS1/10S152J	R 641	RS1/10S473J
R 414	RS1/10S392J	R 642	RS1/10S102J
R 415	RS1/10S392J	R 644	RS1/10S473J
R 416	RS1/10S272J	R 645	RS1/10S473J
R 417	RS1/10S0R0J	R 646	RS1/10S473J
R 418	RS1/10S222J	R 647	RS1/10S473J
R 419	RS1/10S222J	R 648	RS1/10S473J
R 420	RS1/10S562J	R 649	RS1/10S221J
R 421	RS1/10S222J	R 650	RS1/10S682J
R 422	RS1/10S102J	R 655	RS1/10S222J
R 424	RS1/10S222J	R 656	RS1/10S222J
R 425	RS1/10S105J	R 657	RS1/10S473J
R 426	RS1/10S473J	R 658	RS1/10S473J
R 427	RS1/10S562J	R 659 (RN1/10SE9102D)	GGC1317
R 428	RS1/10S472J	R 662	RS1/10S222J
R 429	RS1/10S224J	R 663	RS1/10S473J
R 430	RS1/10S0R0J	R 664	RS1/10S103J
R 432	RS1/10S681J	R 665 (RN1/10SE2402D)	GGC1318
R 455	RS1/10S0R0J	R 667	RS1/10S0R0J
R 502	RS1/10S681J	R 671	RS1/10S681J
R 504	RS1/10S105J	R 672	RS1/10S102J
R 507	RS1/10S222J	R 673	RS1/10S102J
R 552	RS1/10S102J	R 674	RS1/10S102J
R 553	RS1/10S102J	R 675	RS1/10S681J
R 554	RS1/10S102J	R 676	RS1/10S681J
R 555	RS1/10S102J	R 677	RS1/10S681J
R 556	RS1/10S102J	R 678	RS1/10S681J
R 557	RS1/10S0R0J	R 681	RS1/8S102J
R 558	RS1/10S0R0J	R 682	RS1/8S102J
R 559	RS1/10S222J	R 683	RS1/8S102J
R 560	RS1/10S222J	R 685	RS1/10S103J
R 561	RS1/10S684J	R 686	RS1/10S103J
R 562	RS1/10S681J	R 687	RS1/10S223J
R 563	RS1/10S562J	R 688	RS1/10S223J
R 564	RS1/10S102J	R 689	RS1/10S223J

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 690	RS1/10S272J	CAPACITORS	
R 691	RS1/10S223J		
R 692	RS1/10S272J	C 101	CKSQYB104K16
R 693	RS1/10S223J	C 102	CKSQYB104K16
R 694	RS1/10S272J	C 103	CEJA1R0M50
		C 104	CEJA1R0M50
		C 105	CEJA100M16
R 695	RS1/10S473J		
R 696	RS1/10S473J		
R 697	RS1/10S473J	C 106	CEJA100M16
R 698	RS1/8S331J	C 107	CEJA1R0M50
R 700	RS1/10S274J	C 108	CEJA1R0M50
		C 109	CKSQYB102K50
		C 131	CKSQYB681K50
R 801	RD1/4PU102J		
R 802	RS1/8S103J		
R 803	RS1/10S224J	C 132	CEJA101M10
R 804	RS1/10S222J	C 141	CCSQCH101J50
R 805	RD1/4PU102J	C 151	CKSQYB223K50
		C 152	CKSQYB223K50
		C 153	CEV1R0M50
R 806	RS1/10S104J		
R 807	RS1/10S222J		
R 809	RS1/10S1R0J	C 154	CEV1R0M50
R 810	RS1/10S103J	C 171	CEJA1R0M50
R 811	RS1/10S104J	C 172	CEJA1R0M50
		C 173	CEV4R7M25
		C 174	CEV4R7M25
R 815	RS1/10S222J		
R 816	RS1/8S222J		
R 817	RS1/10S222J	C 175	CCSQCH820J50
R 818	RS1/8S222J	C 176	CCSQCH820J50
R 819	RS1/8S103J	C 177	CCSQCH390J50
		C 178	CCSQCH390J50
		C 179	CCSQCH390J50
R 820	RS2PMF330J		
R 821	RS1/8S472J		
R 830	RS1/10S102J	C 180	CCSQCH390J50
R 851	RD1/4PU561J	C 182	CEJA1R0M50
R 852	RS1/10S102J	C 183	CEJA220M6R3
		C 184	CEJA101M10
		C 185	CEJA100M16
R 853	RS1/10S102J		
R 854	RS1/10S102J		
R 855	RS1/10S102J	C 186	CKSQYB223K50
R 856	RS1/10S473J	C 201	CEJA4R7M35
R 857	RS1/10S473J	C 202	CEJA4R7M35
		C 203	CEJA100M16
		C 204	CEJA100M16
R 859	RS1/10S0R0J		
R 871	RS1/10S102J		
R 872	RD1/4PU102J	C 205	CKSQYB104K16
R 873	RS1/10S473J	C 206	CKSQYB104K16
R 911	RS1/8S0R0J	C 207	CEJA100M16
		C 208	CEJA100M16
		C 217	CCSQCH221J50
R 912	RS1/10S392J		
R 913	RS1/10S752J		
R 921	RS1/10S472J	C 218	CCSQCH101J50
R 922	RD1/4PU221J	C 227	CKSQYB103K50
R 923	RD1/4PU221J	C 229	CEJANP100M10
		C 230	CKSYB475K10
		C 231	CEZA4R7M25
R 931	RS1/10S472J		
R 932	RD1/4PU221J		
R 933	RD1/4PU221J	C 232	CEZA4R7M25
R 941	RS1/10S102J	C 233	CEZA4R7M25
R 942	RS1/10S102J	C 234	CEZA4R7M25
		C 235	CEZA100M16
		C 236	CEZA100M16
R 943	RS1/10S472J		
R 951	RS1/10S103J		
R 952	RS1/10S103J	C 237	CCSQCH221J50
R 953	RS1/10S473J	C 238	CCSQCH221J50
R 954	RS1/10S472J	C 239	CCSQCH221J50
		C 240	CCSQCH221J50
		C 241	CCSQCH221J50
R 955	RS1/10S473J		
R 956	RS1/10S103J		
R 961	RS1/8S153J	C 242	CCSQCH221J50
R 962	RS1/10S472J	C 307	CKSQYB104K16
R 963	RS1/10S472J	C 308	CCH1125
		C 351	CCSQCH221J50
		C 352	CCSQCH101J50
R 964	RS1/10S102J		
R 971	RS1/10S822J		
R 973	RS1/10S102J	C 353	CKSYB475K10
R 974	RS1/10S473J	C 401	CKSQYB103K50
R 975	RS1/10S472J	C 402	CKSQYB103K50
		C 403	CKSQYB103K50
		C 404	CKSQYB103K50
R 991	RD1/4PU221J		
R 992	RS1/10S221J		
R 993	RS1/10S472J		
R 994	RS1/10S222J		

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
C 405	CEV220M10	C 806	CKSYB475K10
C 406	CKSQYB103K50	C 807	CCSQCH101J50
C 407	CEV220M10	C 808	CEJA101M16
C 408	CKSQYB103K50	C 809	CCSQCH101J50
C 409	CKSQYB103K50	C 811	CCSCH101J50
C 410	CEV220M6R3	C 851	CKSQYB103K50
C 411	CKSQYB103K50	C 852	CKSYB475K10
C 413 4.7μF/16V	CCH1250	C 853	CKSQYB102K50
C 414	CKSQYB103K50	C 854	CCSQCH101J50
C 415	CKSQYB103K50	C 855	CCSQCH101J50
C 416	CKLSR473K16	C 856	CKSQYB102K50
C 417 4.7μF/16V	CCH1250	C 871 470μF/16V	CCH1183
C 418	CKSQYB103K50	C 872	CEZA100M16
C 419	CEVR47M50	C 873	CKSQYB103K50
C 420	CCSQCH150J50	C 874	CKSQYB102K50
C 421	CCSQCH150J50	C 876	CASA4R7M10
C 422	CKSQYB103K50	C 911 1500μF/16V	CCH1312
C 423	CKSQYB103K50	C 912	CKSQYB472K50
C 424	CCSQCH101J50	C 913	CKSQYB103K50
C 425	CKSQYB473K16	C 914	CASA470M10
C 426	CEV220M6R3	C 921	CKSQYB103K50
C 427	CKSQYB103K50	C 941	CKSQYB102K50
C 428	CKSQYB103K50	C 942 330μF/10V	CCH1181
C 429	CKSQYB471K50	C 943	CEZA470M25
C 430	CKSQYB103K50	C 944	CEJA1R0M50
C 431	CKSQYB223K50	C 945	CEJA101M10
C 433	CKSQYB103K50	C 946	CEJA470M10
C 434	CKSQYB223K50	C 947	CKSQYB102K50
C 435	CKSQYB223K50	C 951	CKSQYB105K10
C 503	CCSQCH270J50	C 952	CCSQCH101J50
C 504	CCSQCH270J50	C 971	CEJA2R2M50
C 554	CKSQYB103K50	C 972	CKSQYB102K50
C 555	CKSQYB103K50	C 973	CKSQYB104K16
C 556	CKSQYB472K50	C 991	CKSQYB473K16
C 557	CKSQYB104K16	C 992	CKSQYB102K50
C 558	CKSQYB105K10	C 993	CEJA101M10
C 559	CKSQYB104K16		
C 560	CKSQYB222K50		
C 561	CCSQCH101J50		
C 562	CEJA100M16		
C 563	CKSQYB223K50		
C 564	CKSQYB104K16		
C 565	CKSQYB223K50		
C 601	CCSQCH200J50		
C 602	CCSQCH200J50		
C 604	CEJA101M10		
C 606	CCSQCH101J50		
C 608	CCSQCH101J50		
C 609	CEJA100M16		
C 610	CKSQYB104K16		
C 615	CCSQCH101J50		
C 616	CCSQCH101J50		
C 617	CCSQCH101J50		
C 618	CCSQCH101J50		
C 619	CCSQCH101J50		
C 620	CCSRCH101J50		
C 651	CKSYB475K10		
C 653	CKSQYB102K50		
C 671	CKSQYB103K50		
C 672	CEZA100M16		
C 683	CKSQYB103K50		
C 684	CKSQYB103K50		
C 685	CKSQYB103K50		
C 686	CKSQYB473K16		
C 803	CKSQYB103K50		

C

Unit Number : CWM5688(DEH-P945R/EW)
Unit Number : CWM5687(DEX-P99R/EW)
Unit Name : Keyboard Unit

MISCELLANEOUS

IC 1901	HIC Module	RS-140
IC 1902	IC	PD6237C
IC 1903	IC	SED1540F0A
IC 1904	IC	SED1526F0A
IC 1905	IC	SED1526F0A
Q 1901	Transistor	IMH10A
Q 1902	Transistor	IMH10A
Q 1903	Transistor	IMH10A
D 1901	Diode	MA153
D 1902	Diode	MA153
D 1903	Diode	MA153
D 1904	Diode	MA152WA
D 1905	LED	CL170PGCD
D 1906	LED	CL170DCD
D 1907	LED	CL170PGCD
D 1909	LED	CL170PGCD
D 1910	LED	CL170PGCD
D 1911	LED	CL170DCD
D 1912	LED	CL170PGCD
D 1913	LED	CL170PGCD
D 1914	LED	CL170PGCD
D 1915	LED	CL170DCD
D 1917	LED	CL170PGCD
D 1918	LED	CL170PGCD
D 1919	LED	CL170DCD

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
D 1920 LED	CL170PGCD	R 1953	RS1/10S624J
L 1901 Chip Inductor	LCTA2R2J3225	R 1954	RS1/10S471J
L 1902 Inductor	LCTB2R2K2125	R 1955	RS1/10S471J
L 1903 Inductor	LCTB2R2K2125	R 1956	RS1/10S471J
L 1904 Inductor	LCTB2R2K2125	R 1957	RS1/10S471J
L 1905 Inductor	LCTA4R7J3225	R 1958	RS1/10S473J
X 1901 Radiator 3.77MHz	CSS1427	R 1959	RS1/10S472J
S 1901 Spring Switch	CSN1042	R 1960	RS1/10S103J
S 1902 Push Switch	CSG1117	R 1961	RS1/10S103J
S 1903 Switch	CSG1075	R 1962	RS1/10S103J
S 1904 Push Switch	CSG1117	R 1965	RS1/8S751J
S 1906 Push Switch	CSG1117	R 1966	RS1/8S751J
S 1907 Switch	CSG1075	R 1967	RS1/8S751J
S 1908 Push Switch	CSG1117	R 1968	RS1/8S102J
S 1909 Push Switch	CSG1117	R 1970	RS1/8S751J
S 1910 Push Switch	CSG1118		
S 1911 Switch(DEH-P945R/EW)	CSG1084	CAPACITORS	
S 1911 Switch(DEX-P99R/EW)	CSG1107	C 1901	CSZSR100M6R3
S 1913 Push Switch	CSG1117	C 1906	CKSQYB103K50
S 1914 Push Switch	CSG1117	C 1907	CKSQYB103K50
S 1915 Switch(DEH-P945R/EW)	CSG1085	C 1908	CKSQYB103K50
S 1915 Switch(DEX-P99R/EW)	CSG1108	C 1909	CKSQYF105Z16
S 1916 Push Switch	CSG1118		
VR 1901 Semi-fixed 330kΩ(B)	CCP1238	C 1910	CKSQYF105Z16
VR 1902 Semi-fixed 330kΩ(B)	CCP1238	C 1911	CKSQYF105Z16
EL 1901	CEL1580	C 1912	CKSQYF105Z16
LCD1901 LCD(DEH-P945R/EW)	CAW1471	C 1913	CKSQYF105Z16
LCD1901 LCD(DEX-P99R/EW)	CAW1493	C 1914	CKSQYF105Z16
RESISTORS		C 1915	CKSQYF105Z16
R 1901	RS1/8S222J	C 1916	CKSQYF105Z16
R 1902	RS1/8S222J	C 1917	CKSQYB103K50
R 1903	RS1/8S222J	C 1918	CSZS1R0M16
R 1904	RS1/10S121J	C 1919	CSZS1R0M16
R 1905	RS1/10S473J		
R 1907	RS1/8S751J	C 1920	CSZS1R0M16
R 1908	RS1/10S103J	C 1921	CKSQYF105Z16
R 1910	RS1/8S751J	C 1922	CKSQYF105Z16
R 1911	RS1/8S751J	C 1923	CKSQYF105Z16
R 1912	RS1/8S102J	C 1924	CKSQYF105Z16
R 1913	RS1/10S103J		
R 1915	RS1/10S0R0J	C 1925	CKSQYF105Z16
R 1916	RS1/8S751J	C 1926	CKSQYB103K50
R 1917	RS1/4S471J	C 1927	CSZS1R0M16
R 1918	RS1/10S103J	C 1928	CSZS1R0M16
R 1920	RS1/10S0R0J	C 1929	CSZS1R0M16
R 1922	RS1/10S103J		
R 1927	RS1/10S473J	C 1934	CSZSR100M6R3
R 1928	RS1/10S473J	C 1935	CKSQYB104K16
R 1929	RS1/10S473J	C 1936	CSZSR100M6R3
R 1930	RS1/10S473J		
R 1931	RS1/16S470J	IC 3001 IC	PD5445C
R 1932	RS1/16S470J	IC 3101 IC	AK7712AVT
R 1935	RS1/10S473J	IC 3102 IC	TC9331F
R 1936	RS1/10S473J	IC 3103 IC(M5M51016BTP-70LL)	GGC1325
R 1937	RS1/10S103J	IC 3141 IC	BU4066BCFV
R 1938	RS1/10S473J		
R 1939	RA4C101J	IC 3142 IC	TC7S08FU
R 1940	RS1/10S103J	IC 3201 IC	AK4321VF
R 1941	RA4C101J	IC 3301 IC	PM0017AM
R 1942	RS1/10S103J	L 3001 High Loss Inductor	CTF1410
R 1943	RS1/10S473J	L 3002 High Loss Inductor	CTF1410
R 1944	RS1/10S473J		
R 1945	RS1/10S473J	L 3003 High Loss Inductor	CTF1410
R 1946	RA3C102J	L 3004 High Loss Inductor	CTF1410
R 1947	RA3C102J	L 3101 High Loss Inductor	CTF1410
R 1948	RA3C102J	L 3102 High Loss Inductor	CTF1410
R 1950	RS1/10S624J	L 3103 High Loss Inductor	CTF1410
R 1951	RS1/10S624J		
R 1952	RS1/10S624J	L 3104 High Loss Inductor	CTF1410
		L 3141 Inductor	LCTB2R2K2125
		L 3142 High Loss Inductor	CTF1410
		L 3143 Inductor	CTF1420
		L 3151 High Loss Inductor	CTF1410

F Unit Number : CWX2214
Unit Name : DSP Unit

MISCELLANEOUS

IC 3001 IC	PD5445C
IC 3101 IC	AK7712AVT
IC 3102 IC	TC9331F
IC 3103 IC(M5M51016BTP-70LL)	GGC1325
IC 3141 IC	BU4066BCFV
IC 3142 IC	TC7S08FU
IC 3201 IC	AK4321VF
IC 3301 IC	PM0017AM
L 3001 High Loss Inductor	CTF1410
L 3002 High Loss Inductor	CTF1410
L 3003 High Loss Inductor	CTF1410
L 3004 High Loss Inductor	CTF1410
L 3101 High Loss Inductor	CTF1410
L 3102 High Loss Inductor	CTF1410
L 3103 High Loss Inductor	CTF1410
L 3104 High Loss Inductor	CTF1410
L 3141 Inductor	LCTB2R2K2125
L 3142 High Loss Inductor	CTF1410
L 3143 Inductor	CTF1420
L 3151 High Loss Inductor	CTF1410

DEH-P945R,DEX-P99R

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
L 3152 High Loss Inductor	CTF1410	R 3154	RSK1/16S151J
L 3153 High Loss Inductor	CTF1410	R 3155	RSK1/16S151J
L 3154 High Loss Inductor	CTF1410	R 3156	RSK1/16S151J
L 3201 High Loss Inductor	CTF1410	R 3160	RS1/10S0R0J
L 3301 High Loss Inductor	CTF1410		
		CAPACITORS	
L 3302 High Loss Inductor	CTF1410	C 3002	CKSYB106K6R3
L 3303 High Loss Inductor	CTF1410	C 3102	CKSQYB103K50
L 3304 High Loss Inductor	CTF1410	C 3104	CCSRCH100D50
L 3305 High Loss Inductor	CTF1410	C 3105	CCSRCH100D50
L 3306 High Loss Inductor	CTF1410	C 3107	CKSYB106K6R3
X 3001 Resonator 10.00MHz	CSS1428	C 3108	CKSQYB104K16
X 3101 Crystal Resonator 16.9344MHz	CSS1067	C 3109	CSZSR470M6R3
X 3102 Crystal Resonator 32.0MHz	CSS1360	C 3110	CKSQYB104K16
		C 3111	CKSYB106K6R3
RESISTORS		C 3112	CKSQYB104K16
R 3001	RS1/16S102J	C 3113	CCSQCH221J50
R 3002	RS1/16S102J	C 3114	CKSYB106K6R3
R 3003	RS1/16S102J	C 3115	CCSQCH100J50
R 3004	RS1/16S681J	C 3116	CCSQCH100J50
R 3005	RS1/16S681J	C 3117	CKSYB106K6R3
R 3006	RS1/16S681J	C 3119	CKSYB106K6R3
R 3007	RS1/16S681J	C 3120	CKSQYB104K16
R 3008	RS1/16S681J	C 3141	CKSQYB103K50
R 3009	RS1/16S102J	C 3143	CKSQYB103K50
R 3010	RS1/16S102J	C 3145	CCSQCH470J50
R 3011	RS1/16S102J	C 3146	CCSRCH221J50
R 3012	RS1/16S102J	C 3151	CKLSRB332K50
R 3013	RS1/16S102J	C 3152	CKLSRB332K50
R 3014	RS1/16S102J	C 3159	CKLSRR103K16
R 3015	RS1/16S473J	C 3160	CKLSRR103K16
R 3016	RA3C102J	C 3161	CKLSRR103K16
R 3018	RS1/16S102J	C 3162	CKLSRR103K16
R 3019	RS1/16S102J	C 3163	CKLSRR103K16
R 3020	RS1/16S102J	C 3164	CKLSRR103K16
R 3021	RS1/16S102J	C 3201	CKSYB106K6R3
R 3022	RS1/16S102J	C 3203	CKSQYB104K16
R 3023	RS1/16S102J	C 3205	CSZSR470M6R3
R 3024	RS1/16S102J	C 3206	CKSQYB104K16
R 3025	RS1/16S102J	C 3207	CKSYB106K6R3
R 3026	RS1/16S102J	C 3301	CKSYB475K10
R 3027	RS1/16S102J	C 3302	CKSYB475K10
R 3028	RS1/16S102J	C 3303	CKSYB475K10
R 3029	RS1/16S102J	C 3304	CKSYB475K10
R 3030	RS1/16S102J	C 3305	CKSYB475K10
R 3031	RS1/16S102J	C 3306	CKSYB475K10
R 3032	RS1/16S102J	C 3307	CKSQYB104K16
R 3033	RS1/16S473J	C 3308	CKSYB106K6R3
R 3034	RS1/16S473J	C 3309	CKSQYB104K16
R 3035	RS1/16S473J		
R 3036	RS1/16S105J		
R 3037	RS1/16S102J		
R 3101	RS1/16S473J		
R 3102	RS1/16S473J		
R 3103	RA4C102J		
R 3104	RA4C102J		
R 3105	RA4C102J		
R 3106	RA4C102J		
R 3108	RA4C102J		
R 3109	RA4C102J		
R 3110	RA4C102J		
R 3111	RA4C102J		
R 3112	RS1/16S105J		
R 3113	RS1/16S105J		
R 3114	RS1/16S102J		
R 3115	RS1/16S102J		
R 3116	RS1/16S473J		
R 3141	RA3C103J		
R 3151	RSK1/16S151J		
R 3152	RSK1/16S151J		
R 3153	RSK1/16S151J		
		Unit Number : CWX2216	
		Unit Name : ASL Unit	
		MISCELLANEOUS	
		IC 4501 IC	NJM2068MD
		IC 4502 IC	NJM2068MD
		Q 4501 Transistor	2SC2458
		D 4501 Diode	MA152WK
		D 4502 Diode	MA3043(LMH)
		D 4503 Diode	MA3075(M)
		VR 4501 Semi-fixed 10kΩ(B)	CCP1319
		MIC4501	CPM1011
		RESISTORS	
		R 4501	RS1/8S222J
		R 4502	RS1/8S683J
		R 4503	RS1/8S103J
		R 4504	RS1/8S472J
		R 4505	RS1/8S471J

====Circuit Symbol and No.==Part Name

Part No.

R 4506 RS1/8S682J
 R 4507 RS1/8S684J
 R 4508 RS1/8S562J
 R 4509 RS1/8S391J
 R 4510 RS1/8S472J

R 4511 RS1/8S472J
 R 4512 RS1/8S472J
 R 4513 RS1/8S153J
 R 4514 RS1/8S153J
 R 4515 RS1/8S102J

R 4517 RS1/8S270J

CAPACITORS

C 4501 CEJA470M10
 C 4502 CEJA470M10
 C 4503 CEJAR68M50
 C 4504 CEJA100M16
 C 4505 CEJA470M10

C 4506 CEJA470M16
 C 4507 CEJA100M16
 C 4508 CEJANP220M10
 C 4509 CEJAR68M50
 C 4510 CEJANP100M10

C 4511 CKSYB823K50
 C 4512 CCSCH101J50
 C 4513 CEJA470M10



Unit Number :
 Unit Name : Microphone Jack Unit

D 4601 LED BR4361F



Unit Number :
 Unit Name : Flap Sense PCB

S 951 Switch(CLOSE) CSN1012
 S 952 Switch(HOME) CSN1022



Unit Number : CWM4538(DEX-P99R/EW)
 Unit Name : D/D Converter Unit

MISCELLANEOUS

IC 4001 IC TL1451ANS
 Q 4001 Transistor 2SA1797
 Q 4002 Transistor 2SC2812
 Q 4003 Transistor 2SA1179
 Q 4004 Transistor 2SA1576

Q 4005 Transistor DTC124EU
 D 4001 Diode SC802-06
 L 4001 Choke Coil 220μH CTH1164
 L 4002 Choke Coil 220μH CTH1164
 L 4003 Choke Coil 220μH CTH1164

RESISTORS

R 4001 RS1/10S122J
 R 4002 RS1/10S473J
 R 4003 RS1/4S681J
 R 4004 RS1/10S101J
 R 4005 (RN1/10SE3302D) GGC1319

R 4006 (RN1/10SE1202D) GGC1269
 R 4007 RS1/10S104J
 R 4008 (RN1/10SE6201D) GGC1324
 R 4009 RS1/10S223J
 R 4010 RS1/10S223J

R 4011 RS1/10S101J
 R 4012 (RN1/10SE1002D) GGC1320
 R 4013 (RN1/10SE1002D) GGC1320
 R 4016 RS1/10S754J
 R 4017 (RN1/10SE9101D) GGC1321

====Circuit Symbol and No.==Part Name

Part No.

R 4018 (RN1/10SE1502D) GGC1322
 R 4019 (RN1/10SE3002D) GGC1323

CAPACITORS

C 4001 33μF/25V CCH1249
 C 4002 CKSQYB102K50
 C 4003 33μF/25V CCH1249
 C 4004 CCSQCH101J50
 C 4005 CKSQYB102K50

C 4006 33μF/25V CCH1249
 C 4008 33μF/25V CCH1249
 C 4009 CKSQYB102K50
 C 4010 CKSQYB102K50
 C 4011 CKSQYF105Z16

C 4012 CCSQCH221J50
 C 4013 CKSQYB104K25
 C 4014 CKSQYB102K50

High Out Unit
Consists of
D/D Converter PCB
High Out PCB



Unit Number : CWX2215(DEX-P99R/EW)
 Unit Name : High Out Unit

MISCELLANEOUS

IC 4151 IC NJM4580M
 IC 4251 IC NJM4580M
 IC 4351 IC NJM4580M
 Q 4151 Transistor IMX9
 Q 4251 Transistor IMX9

Q 4351 Transistor IMX9
 D/D Converter Unit CWM4358

RESISTORS

R 4153 RSK1/10S103J
 R 4154 RSK1/10S103J
 R 4155 RSK1/10S153J
 R 4156 RSK1/10S153J
 R 4157 RSK1/10S680J

R 4158 RSK1/10S680J
 R 4159 RS1/10S223J
 R 4160 RS1/10S223J
 R 4161 RS1/10S222J
 R 4162 RS1/10S222J

R 4163 RS1/10S103J
 R 4253 RSK1/10S103J
 R 4254 RSK1/10S103J
 R 4255 RSK1/10S163J
 R 4256 RSK1/10S163J

R 4257 RSK1/10S680J
 R 4258 RSK1/10S680J
 R 4259 RS1/10S223J
 R 4260 RS1/10S223J
 R 4261 RS1/10S222J

R 4262 RS1/10S222J
 R 4353 RSK1/10S103J
 R 4354 RSK1/10S103J
 R 4355 RSK1/10S153J
 R 4356 RSK1/10S153J

R 4357 RSK1/10S680J
 R 4358 RSK1/10S680J
 R 4359 RS1/10S223J
 R 4360 RS1/10S223J
 R 4361 RS1/10S222J

R 4362 RS1/10S222J

DEH-P945R,DEX-P99R

====Circuit Symbol and No.==Part Name Part No.

CAPACITORS

C	4151		CEWAR100M50
C	4152		CKSQYB471K50
C	4153		CEWAR100M50
C	4154		CEWAR100M50
C	4157		CCSQCH820J50
C	4158		CCSQCH820J50
C	4253		CEWAR100M50
C	4254		CEWAR100M50
C	4257		CCSQCH820J50
C	4258		CCSQCH820J50
C	4353		CEWAR100M50
C	4354		CEWAR100M50
C	4357		CCSQCH820J50
C	4358		CCSQCH820J50

I Unit Number : CWX2191
Unit Name : Mechanism FPC Unit

MISCELLANEOUS

D	1	LED	CL200IRX
D	2	LED	CL200IRX
D	3	LED	CL200IRX
S	1	Spring Switch(CLAMP)	CSN1033
S	2	Spring Switch(HOME)	CSN1033

RESISTORS

R	1		RS1/8S0R0J
R	2		RS1/8S0R0J
R	3		RS1/8S751J
R	4		RS1/8S751J
R	5		RS1/8S751J

J Unit Number : CWX2190
Unit Name : Photo FPC Unit

P	1	Photo-transistor	CPT-230S-X
P	2	Photo-transistor	CPT-230S-X
P	3	Photo-transistor	CPT-230S-X

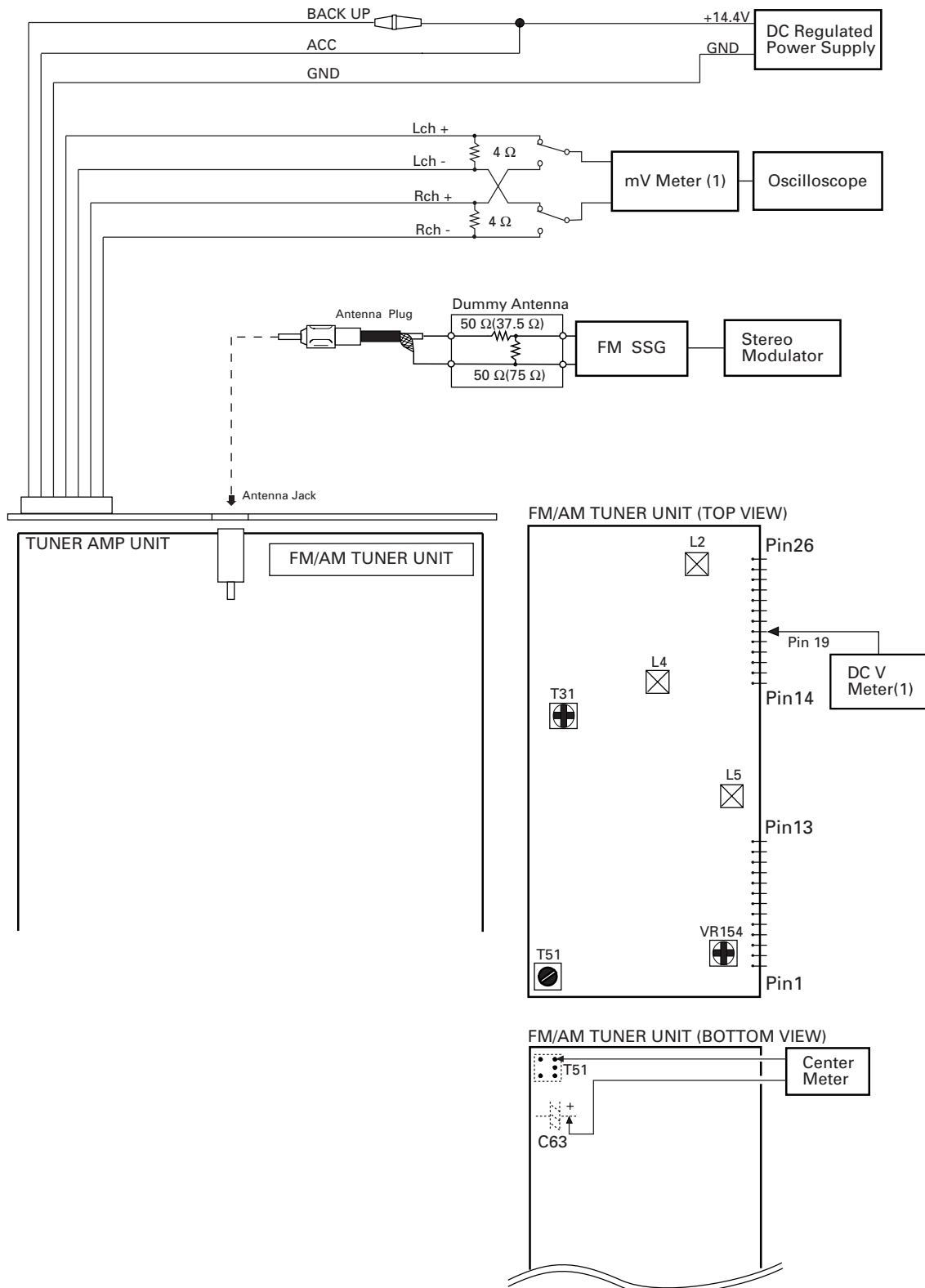
Miscellaneous Parts List

		Pickup Unit(Service)	CXX1290
M	1	CRG Motor Assy(Carriage)	CXB1670
M	2	LOAD Motor Unit>Loading)	CXB1684
M	3	Motor(Spindle)	CXM1129
M	851	Motor	CXM1085

6. ADJUSTMENT

6.1 TUNER ADJUSTMENT

● Connection Diagram



FM ADJUSTMENT

Modulation M: MONO MOD., 400Hz 30%(22.5kHz Dev.)

S: STEREO MOD., 1kHz, L or R=30%(20.25kHz+7.5kHz Dev.)

NOTE: Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
TUN Volt	1	.....	.....	108.0	L5	DC V Meter(1) : 6V
IF	1	98.1 M	60	98.1	T51	Center Meter : 0
ANT Coil	1	98.1 M	5	98.1	L2	mV Meter(1) : Maximum
RF Coil	1	98.1 M	5	98.1	L4	mV Meter(1) : Maximum
IFT	1	98.1 M	5	98.1	T31	mV Meter(1) : Maximum (STEREO MODE)
ARC	1	98.1 S	39	98.1	VR154	mV Meter(1) : Separation 5dB (STEREO MODE)

FM RDS SL VOLTAGE ADJUSTMENT, INSPECTION AND CONFIRMATION

No.	Standard	Measurement Point	Adjustment Point	Conditions
1	Adjustment 1.75+0.05[V] standard -0.35[V] Inspection +0.15[V] standard -0.45[V]	SL1 or SL2	VR551	FM: 104.0 MHz ST: Single channel should modulate by 60% f: 400 Hz RF: Input 35 dBf
2	Confirm display of FM SL voltage (in TUN Test Mode) The upper (left) two digits of the 8 digits displayed next to frequency in the rotary display (in Service Mode) should be 09 to 0B			

6.2 KEYBOARD UNIT ADJUSTMENT

● ADJUSTMENT OF VISUAL-FIELD ANGLE OF THE KEYBOARD UNIT

No.	Standard	Measurement Point	Adjustment Point	Conditions
1	Adjustment standard -0.10[V] Inspection +0.15[V] standard -0.15[V]	-2.5+0.10[V] or TP14	IC1904-6pin	VR1902 SW VDD supply voltage 5[V]
		IC1905-6pin - or TP15	VR1901	

6.3 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT

• Note :

Unlike previous CD mechanism modules the grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

• Purpose :

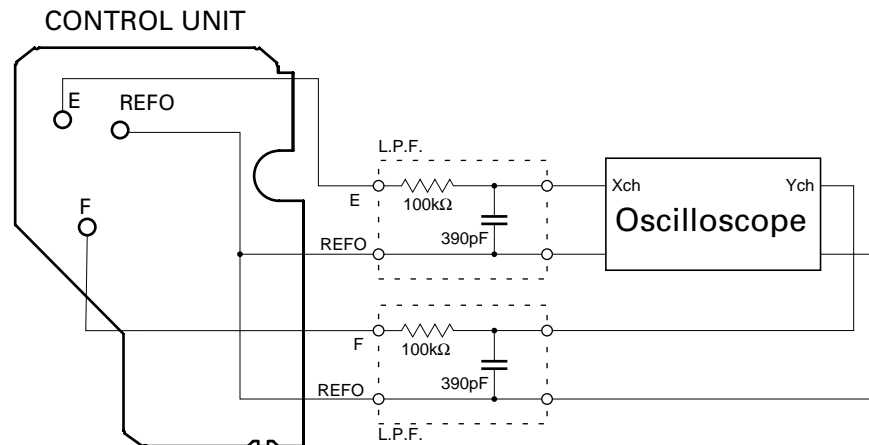
To check that the grating is within an acceptable range.

• Symptoms of Mal-adjustment :

If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or track searching taking a long time, may appear.

• Method :

- | | |
|-----------------------|----------------------------|
| • Measuring Equipment | • Oscilloscope, Two L.P.F. |
| • Measuring Points | • E, F, REFOUT |
| • Disc | • ABEX TCD-784 |
| • Mode | • TEST MODE |



• Checking Procedure

1. In test mode, load the disc and switch the 5V regulator on.
2. Using the **TR+** and **TR-** buttons, move the PU unit to the innermost track.
3. Press key **3** to close focus, the display should read "91". Press key **2** to implement the tracking balance adjustment the display should now read "81". Press key **3** 4 times. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75° . Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

• Note

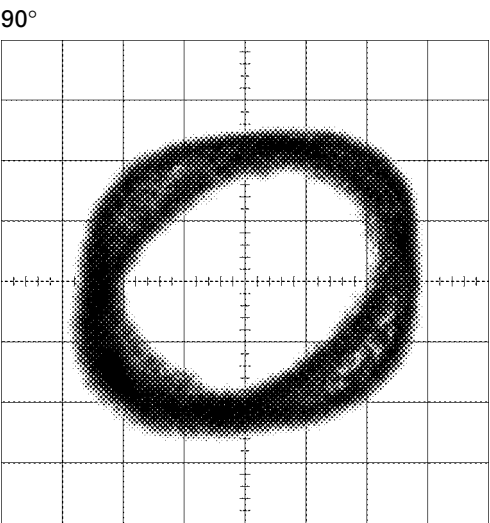
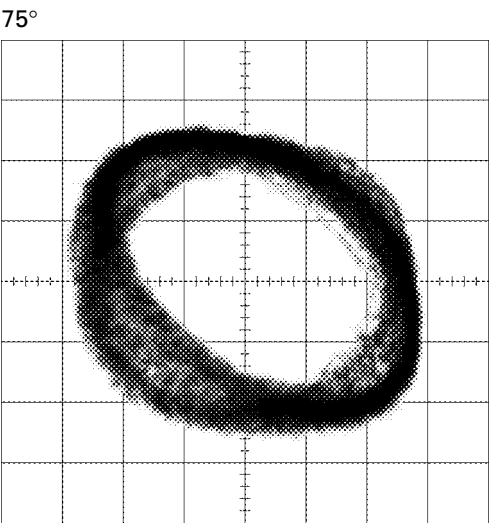
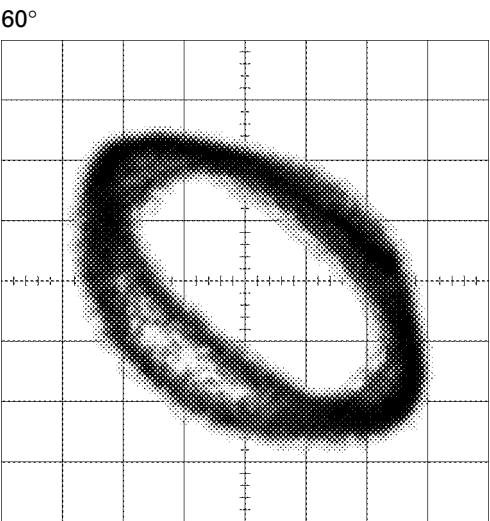
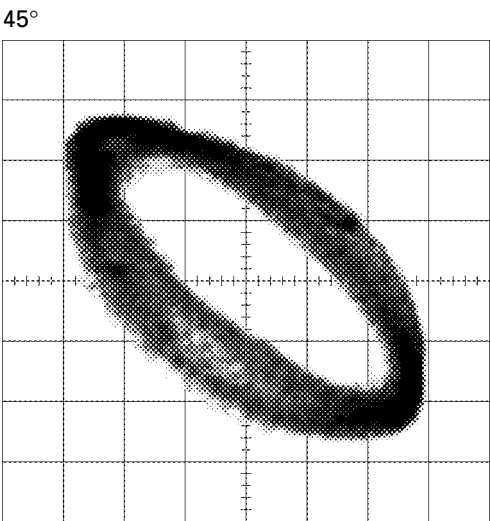
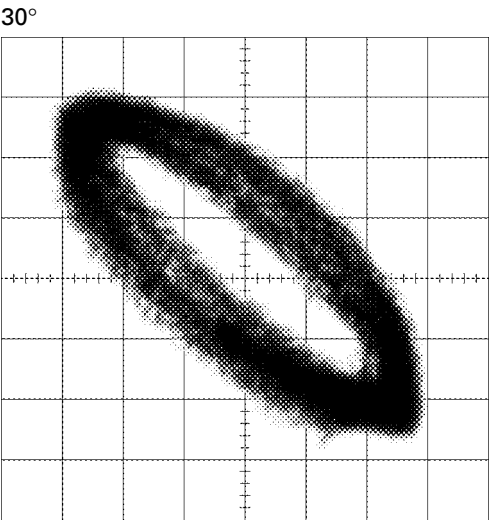
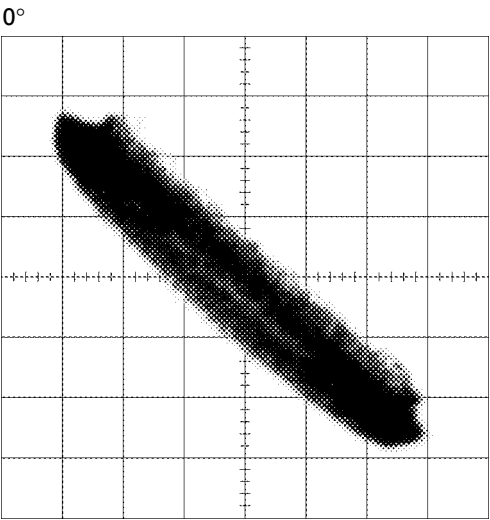
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• Hint

Reloading the disc changes the clamp position and may decrease the "wobble".

Grating waveform

Ech → Xch 20mV/div, AC
Fch → Ych 20mV/div, AC



7. GENERAL INFORMATION

7.1 PARTS

7.1.1 IC

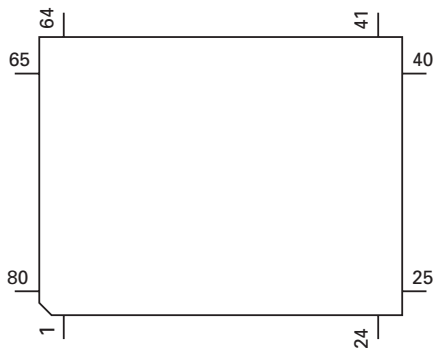
UPD63702AGF	PD4931A	GGC1325(M5M51016BTP-70LL)
BA6797FM	PD0236AM	TC7S08FU
LC89170M	PD6237B	AK4321VF
BA05SFP	SED1540F0A	PM0017AM
LB1930M	SED1526F0A	NJM4580M
PM2007A	PD5445A	
PD4905A	AK7712AVT	

● Pin Functions (UPD63702AGF)

Pin No.	Pin Name	I/O	Function and Operation
1	D.VDD		Supplies current of positive voltage to the logic circuits
2	RST	I	System reset input pin
3	AO	I	Microcomputer interface AO="L": \overline{STB} active and set to address register AO="H": \overline{STB} active and set to parameter
4	\overline{STB}	I	Signal to latch serial data within the LSI
5	\overline{SCK}	I	Clock input pin to input and output serial data
6	SO	O	Outputs serial data and status signal
7	SI	I	Serial data input pin
8	D.GND		Logic circuit GND
9	X.GND		Crystal oscillation circuit GND
10	XTAL	I	Crystal oscillator connection pin
11	\overline{XTAL}	O	Crystal oscillator connection pin
12	X.VDD		Supplies current of positive voltage to the crystal oscillation circuit
13	DA.VDD		Supplies current of positive voltage to the D/A converter
14	R+	O	Right channel analog audio data output pin
15	R-	O	Right channel analog audio data output pin
16,17	DA.GND		D/A converter GND
18	L-	O	Left channel analog audio data output pin
19	L+	O	Left channel analog audio data output pin
20	DA.VDD		Supplies current of positive voltage to the D/A converter
21	D.VDD		Supplies current of positive voltage to logic circuit
22	FLAG	O	Flag output pin to indicate that audio data currently being output consists of noncorrectable data
23	WDCK	O	Pin to output double the frequency of LRCK
24	C16M	O	Pin to output the clock
25	EMPH	O	Output pin for the pre-emphasis data in the sub-Q code
26	DIN	I	Input pin for serial audio data
27	DOUT	O	Output pin for the serial audio data
28	SCKO	O	Output pin for the clock for the serial audio data
29	LRCK	O	Signals to distinguish the right and left channels of the audio data output from DOUT. Frequency is 44.1kHz at 50% duty at normal regeneration
30	TX	O	Output pin for the digital audio interface data
31	CTLV	I	Oscillation control pin for high-frequency clock generation VCO used for the digital PLL upon regeneration at fast speed of 2- or 4-fold
32	POUT	O	Output point for phase comparison
33	D.GND		GND for the logic circuit
34	VCO	I	Input pin for the inverter
35	\overline{VCO}	O	Output pin for the inverter
36	D.VDD		Supplies current of positive voltage to the logic circuit
37	PLCK	O	Pin for monitoring the bit clock

Pin No.	Pin Name	I/O	Function and Operation
38	LOCK	O	Indicates "H" when the synchronized pattern detection signal matches the frame counter output at the EFM recovery modulation, and "L" when they don't match
39	WFKK	O	Minute-cycle signal for the bit clock, the signal indicates the cycle of 1 frame (approx. 7.35kHz)
40	RFCK	O	Minute-cycle signal for the clock, the signal indicates cycle of 1 frame (approx. 7.35kHz)
41	D.GND		GND for the logic circuit
42,43	TEST0,1	I	Test pins
44,45	TM2, TM4	I	Pins for controlling regeneration at fast speed of 2- or 4-fold
46-49	T4-T7	I	Test pins
50,51	C1D1, C1D2	O	Output pin for indicating the C1 error correction results
52-54	C2D1-C2D3	O	Output pin for indicating the C2 error correction results
55	D.VDD		Supplies current of positive voltage to the logic circuit
56	SFSY	O	Outputs 1 word of the subcode. Generally, 1 cycle is approx 136 micro seconds
57	SBSY	O	The signal indicates the beginning of the subcode block. The SFSY signal is output at high level every 98 times
58	SBSO	O	Output pin for the subcode data
59	SBCK	I	Input pin for the clock signal for read-out of the subcode data
60	A.GND		GND for the analog circuit
61	MD	O	Output pin for the spindle drive
62	SD	O	Output pin for the sled drive
63	TD	O	Output pin for the tracking drive
64	FD	O	Output pin for the focus drive
65	FBAL	O	Output pin for the focus balance control
66	TBAL	O	Output pin for the tracking balance control
67	A.VDD		Supplies current of positive voltage to the analog circuit
68	TBC	I	Switches coefficient banks for the tracking filter
69	EFM	I	Input pin for the EFM signal
70	HOLD	I	Input pin for the hold control signal
71	RFOK	I	Input pin for the RFOK signal
72	MIRR	I	Input pin for the MIRR signal
73	A.GND		GND for the analog circuit
74	HOME	I	Home position detector input
75	VR1	I	The signal input through these pins is digitized to 8-bit by the A/D converter, which by operation of the assigned register, can be read into the microcomputer
76	FE	I	Inputs a focus-error signal from the RF amplifier
77	TE	I	Inputs a tracking-error signal from the RF amplifier
78	TEC	I	Input pin for the tracking comparator
79	REFOUT	O	Output point for midpoint potential for the A/D converter for the LSI portion
80	A.VDD		Supplies current of accurate voltage to the analog circuit

*UPD63702AGF



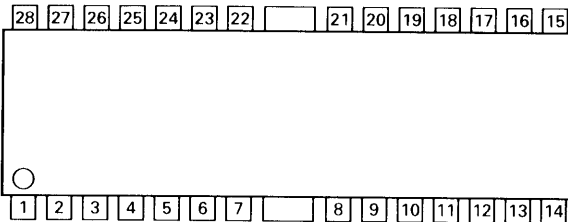
IC's marked by* are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.

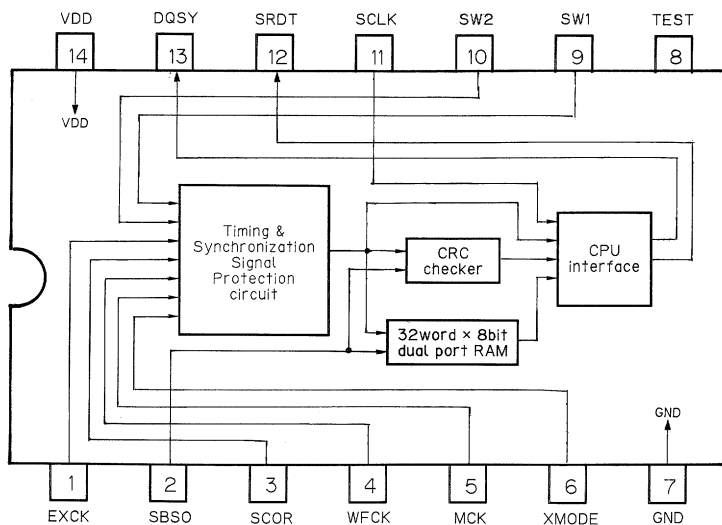
● Pin Functions (BA6797FM)

Pin No.	Pin Name	I/O	Function and Operation
1	OUT1-A	O	Driver CH1 output
2	OUT1-B	O	Driver CH1 output
3	PRE-OUT1	O	CH1 pre-amplifier output
4	IN1(-)	I	CH1 pre-amplifier inverted input
5	IN1(+)	I	CH1 pre-amplifier input
6	REG-B	O	External Tr base connection
7	REG-OUT	O	Fixed voltage output (External Tr collect connection)
8	BIAS-IN	I	Bias input
9	MUTE	I	Mute control
10	IN2(+)	I	CH2 pre-amplifier input
11	IN2(-)	I	CH2 pre-amplifier inverted input
12	PRE-OUT2	O	CH2 pre-amplifier output
13	OUT2-B	O	Driver H2 output
14	OUT2-A	O	Driver CH2 output
15	GND		Sub straight GND
16	OUT3-A	O	Driver CH3 output
17	OUT3-B	O	Driver CH3 output
18	PRE-OUT3	O	CH3 pre-amplifier output
19	IN3(-)	O	CH3 pre-amplifier inverted output
20	IN3(+)	O	CH3 pre-amplifier output
21	VCC		VCC
22	VCC		VCC
23	IN4(+)	O	CH4 pre-amplifier output
24	IN4(-)	O	CH4 pre-amplifier inverted output
25	PRE-OUT4	O	CH4 pre-amplifier output
26	OUT4-B	O	Driver CH4 output
27	OUT4-A	O	Driver CH4 output
28	GND		Sub straight GND

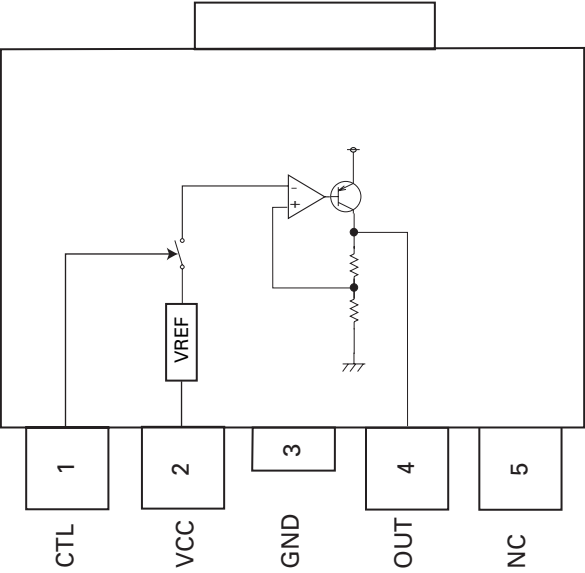
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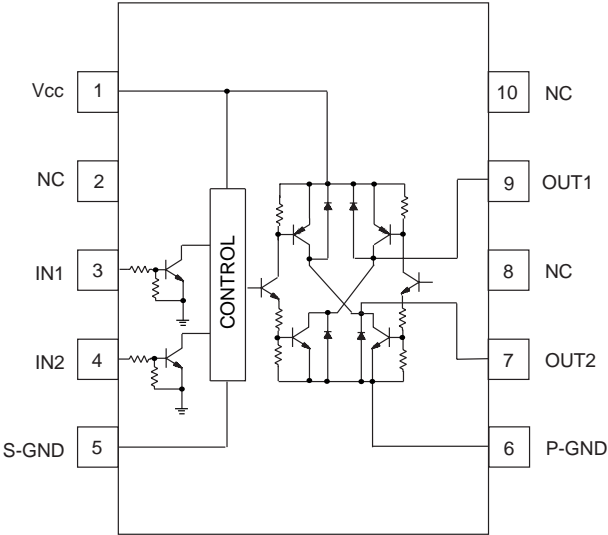
LC89170M



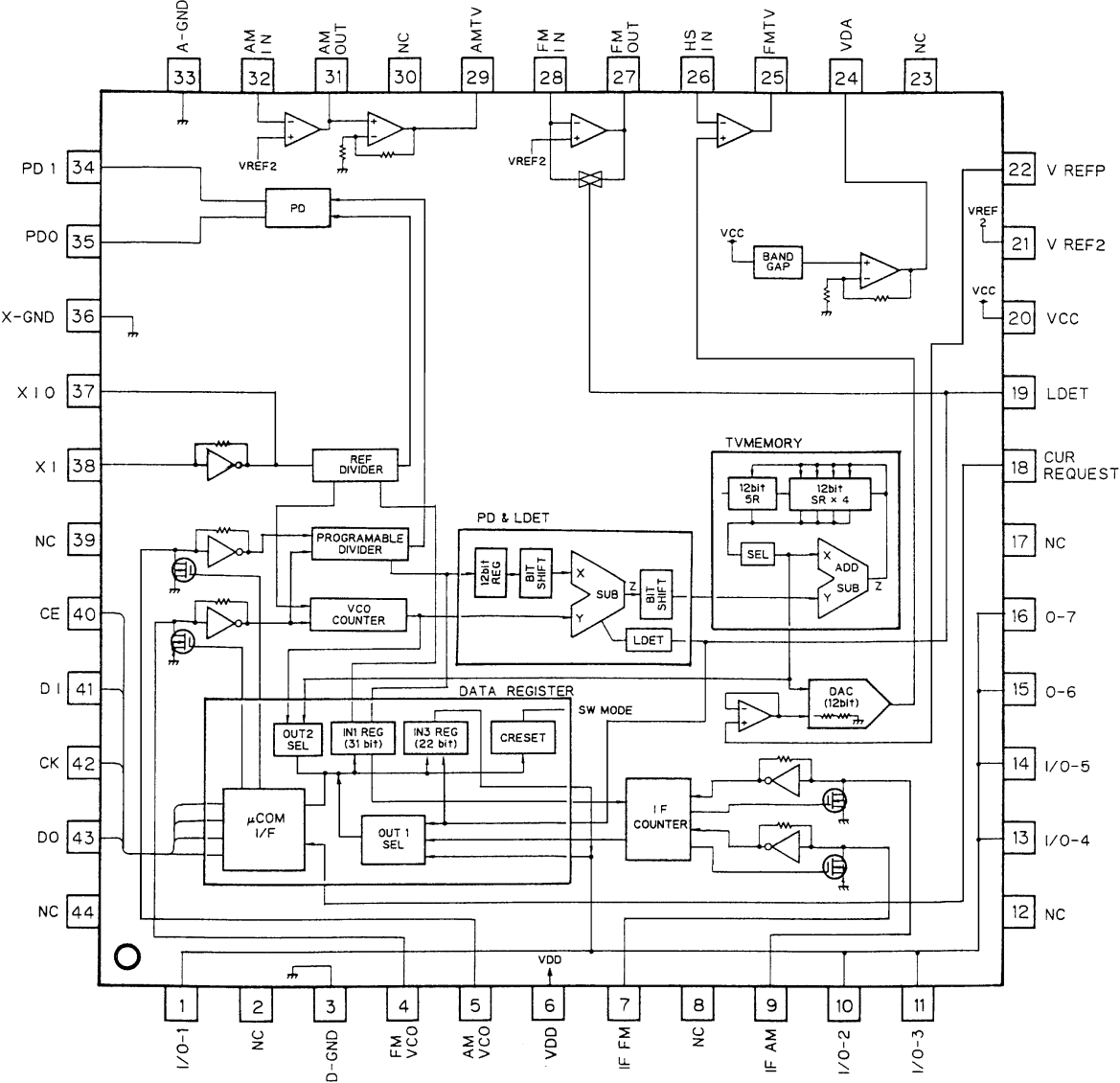
IC702:BA05SFP



LB1930M



PM2007A

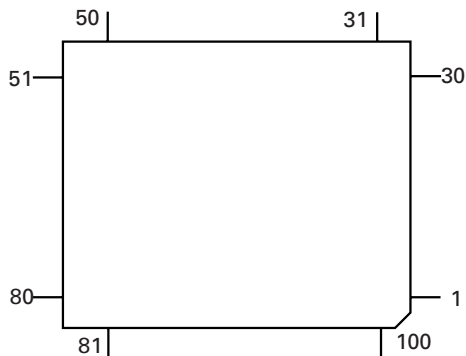


● Pin Functions (PD4905A)

Pin No.	Pin Name	I/O	Function and Operation
1	SWVDD	O	GRIL:Power Output
2	DSNS	I	Detach sense input
3	PSNS	I	Grille eject button sense input
4	ISNS	I	Illumination sense input
5	TESTIN	I	Test program input
6	DRST	O	Reset output
7	NC		Not used
8	SK	I/O	SK input
9	RECIVE	I	During decoder receive output
10	NC		Not used
11	RESET	I	Reset input
12	XT2		Clock connection pin (OPEN)
13	XT1		Clock connection pin (VSS connection)
14	VSS		GND
15	X2		Main oscillator connection pin
16	X1		Main oscillator connection pin (12.582912MHz)
17	REGOFF		Regulator operation designate signal (VDD connection)
18	REGC		Regulator output sense capacity connection (VDD connection)
19	VDD		Power supply
20	ILMPW	O	Illumination output
21	SYSPW	O	System power control output
22	ADPW	O	A/D converter power output
23	LCDPW	O	LCD backlight power output
24	IPPW	O	IPBUS driver power control output
25	ASENBO	O	Slave Acc sense output
26	NC		Not used
27	TELIN	I	TEL mute input
28	MUTE	O	All mute output
29	DIM	O	Dimer output
30	FLPCLS	O	Auto flap motor close output
31	FLPOPEN	O	Auto flap motor open output
32	FOPNSW	I	Auto flap motor open SW input
33	FCLSSW	I	Auto flap motor close SW input
34	FLPPW	O	Auto flap power output
35	NC		Not used
36	TMUTE	O	TUNER mute output
37	STDPRO	I	DSP STD/PRO select input
38	SD	I	SD input
39	ST	I	Stereo input
40	VSS2		GND
41	VDD2		Power supply
42	MDSNS	I	RDS:Demodulation detect input
43	NC		Not used
44	RDSLK	I	RDS:LK input
45	CURRO	O	RDS:TUNER voltage FIX output
46	RDT	I	RDS:Data input
47	DRELAY	O	DFS:Extral relay output
48	DRSENS	I	DFS:Door open/close sense input
49	DRSYS	O	DFS:Door system select output
50	DLED	O	DFS:Alarm LED output
51	DLSNS	I	DFS:Door lock cancellation sense input
52	STCUT	O	DFS:Ignition cut off output
53	MOSENS	I	DFS:Motion/Window damage sensor input
54	DALMON	O	During DFS alarm ON output
55-60	NC		Not used
61	MCSENS	I	Mic sense input
62	PCL	O	Clock adjust output
63	BRXEN	I/O	P-BUS:Communication input/output

Pin No.	Pin Name	I/O	Function and Operation
64	BSRQC	I	P-BUS:Communication request input (CD)
65	BSCK	I/O	P-BUS:Data clock input/output (Test mode clock output)
66	BSI	I	P-BUS:Communication data input (Test mode data input)
67	BSO	I/O	P-BUS:Communication data output
68	BRST	O	P-BUS:Reset output
69	MICSEL	O	Mic select output
70	BSRQD	I	P-BUS:Communication request input (DSP)
71,72	NC		Not used
73	TEST/VPP		IC test pin
74	SL	I	Signal level input (A/D)
75	CL	I	RDS:Synchronizing signal input (A/D)
76	NL	I	RDS:Noise level input (A/D)
77	SEL	I	Destination descrimination input
78	SOR0	O	Source select output 0
79	SOR1	O	Source select output 1
80	ALMSEL	O	DFS alarm select output
81	ADSEL	I	Mic select input
82	AVDD		A/D converter power supply
83	AVREF1		A/D converter standard voltage
84	AVSS		A/D converter GND
85	RX	I	IP-BUS: Data input
86	TX	O	IP-BUS:Data output
87	GND2		Not used
88	LDET	I	RDS:PLL lock detect input
89	RCK	I	RDS:RDS clock input
90	RDS57K	I	RDS:57KHz pulse count input
91	NC		Not used
92	ASENS	I	Acc sense input
93	BSENS	I	B.up sense input
94	TUNPDI	I	PLL:Data input
95	KEYDT	I	GRIL:Data input
96	DPDT	O	GRIL:Data output
97	TUNPCK	O	PLL:Clock output
98	TUNPDO	O	PLL:Data output
99	TUNPCE	O	PLL:Chip enable output
100	PEE	O	PEE beep output

*PD4905A



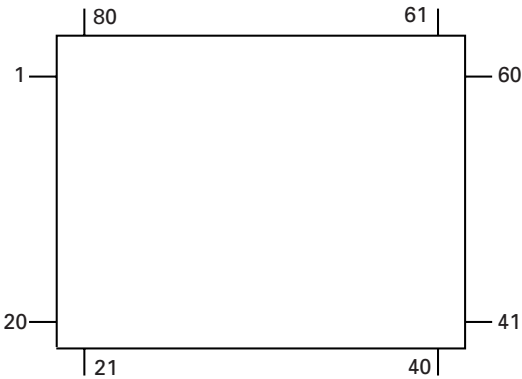
● Pin Functions (PD4931A)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	FOK	I		Focus OK input
2	MIRR	I		Mirror detect input
3	LOCK	I		Spindle lock input
4	AVss			A/D GND electric potential
5	NC			Not used
6	EMPH	O	C	Pre-emphasis output
7	AVREF1	I		A/D Reference electric potential input
8	TSI	I		Decode IC serial data input
9	NC			Not used
10	T $\overline{\text{SCK}}$	O	C	Decode IC serial clock output
11	XSI	I		Serial data input from CD LSI
12	XSO	O	C	Serial data output to CD LSI
13	X $\overline{\text{SCK}}$	O	C	Serial clock output to CD LSI
14	XA0	O	C	CD LSI command/data control output
15	X $\overline{\text{STB}}$	O	C	Strobe output to CD LSI
16	NC			Not used
17	B $\overline{\text{DATA}}$	I/O	C	P-Bus serial data input/output
18	B $\overline{\text{SCK}}$	I/O	C	P-Bus serial clock input/output
19	X $\overline{\text{RST}}$	O	C	CD LSI reset output
20	CONT	O	C	Servo driver voltage control output
21	CD5VON	O	C	CD +5V power supply control output
22	VDCONT	O	C	VD power supply control output
23	CDMUTE	O	C	CD Mute control output
24	CDEJET	O	C	Loading Motor Eject control output
25	CDLOAD	O	C	Loading Motor Load control output
26	BMUTE	O	C	Bus mute output
27	C $\overline{\text{LAMP}}$	I		Disc clamp SW input
28	C $\overline{\text{RST}}$	O	C	Compressor IC reset output
29	CBANK0	O	C	Compressor IC bank set output 0
30	CBANK1	O	C	Compressor IC bank set output 1
31	CBANK2	O	C	Compressor IC bank set output 2
32	C $\overline{\text{CS}}$	O	C	Compressor IC chip select
33	Vss			GND electric potential
34	DSET	O	C	Disc set indicator light output
35	SCONT	O	C	Spindle double speed output
36-54	NC			Not used
55	ERREJ	I		Disc eject select input at the error
56	C $\overline{\text{SENS}}$	I		Ope-fla close sense input
57	TXARI	I		TX output select input
58	BSRQ	I/O	C	P-Bus service request output
59	BRXEN	I/O	C	P-Bus reception enable status
60	R $\overline{\text{SET}}$	I		System reset input
61	NC			Not used
62	B $\overline{\text{RST}}$	I		P-Bus Reset input
63	D $\overline{\text{QSY}}$	I		TEXT decode read permission input
64-66	NC			Not used
67	A $\overline{\text{DNA}}$	O	C	A/D reference voltage supply control input
68	VDD			Positive power supply
69	X2			Main clock oscillator connection pin
70	X1			Main clock oscillator connection pin
71	IC(Vpp)			Internally Connected (Vss)
72	NC			Not used
73	T $\overline{\text{ESTIN}}$	I		Test program start input
74	AVpp			A/D analog power supply
75	AVREF0			A/D reference voltage input
76	EJTENS			Disc eject position sense input
77	DSCSNS			Disc set defect input

Pin No.	Pin Name	I/O	Format	Function and Operation
78	VDSENS	I		VD short sense input
79	TEMP	I		Temperature sense input
80	NC			Not used

Format	Meaning
C	C MOS

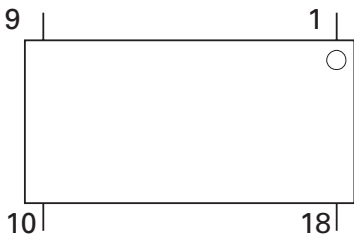
*PD4931A



● Pin Functions (PD0236AM)

Pin No.	Pin Name	I/O	Function and Operation
1	BCSEL	I	Bit clock fs select
2	DASEL	I	Bit expand select
3	NC		Not used
4	LRSEL		LRCKO polarity select
5	LRCKO	O	LRCKO output
6	NC		Not used
7	BCKO	O	Bit clock output
8	DATAO	O	Data output
9	GND		GND
10	VDD		Power supply terminal
11	LRCKI	I	LRCKO input
12,13	NC		Not used
14	DATAI	I	Data input
15	BCKI	I	Bit clock input
16	NC		Not used
17	SEL	I	Bit expand/input data output select
18	XRST	I	Reset input

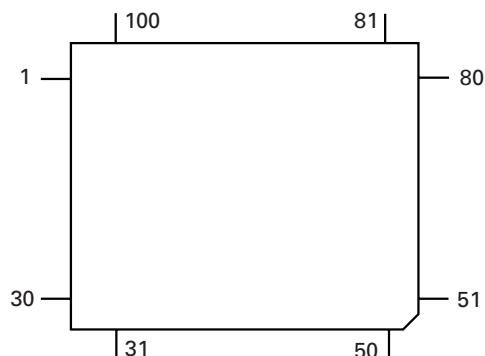
PD0236AM



● Pin Functions (PD6237B)

Pin No.	Pin Name	I/O	Format	Function and Operation
1-9	NC			Not used
10	RDX	O	C	Address bus read strobe output
11	VSS	O	C	Digital GND
12	WRX	O	C	Address bus write strobe output
13-18	NC			Not used
19	KYDT	O	C	Key data to system micro-computer
20	DPDT	I		Display data from system micro-computer
21	SCDCLK	I		Test program clock
22	DATAOT	O	C	Test program data
23	Vcc			Digital GND
24	DATAIN	I		Test program data
25,26	NC			Not used
27	C			Reference voltage
28-33	NC			Not used
34	AVcc			Analog power supply
35,36	NC			Not used
37	AVSS			Analog GND
38	ILM1	O	C	Illumination control output 1
39	ILM2	O	C	Illumination control output 2
40,41	NC			Not used
42	GND			Digital GND
43-48	NC			Not used
49	MD0	I		Mode pin 0 (PULL-UP)
50	MD1	I		Mode pin 1 (PULL-UP)
51	MD2	I		Mode pin 2 (PULL-DOWN)
52	HSTX	I		Hardware standby input (PULL-UP)
53	REMIN	I		Remote control pulse input
54-58	NC			Not used
59-62	KST0-KST3	O	C	Key scan output
63,64	NC			Not used
65	RES1	O	C	SED1450 Reset output
66	RES2	O	C	SED1526 Reset output
67-70	KDT0-KDT3	I	C	Key data input
71-73	NC			Not used
74	OSCK4K	O	C	SED1540 Clock output
75-77	NC			Not used
78	CS1	O	C	SED1526 Top lank chip select output
79	CS2	O	C	SED1526 Bottom lank chip select output
80	CS3	O	C	SED1540 chip select output
81	VSS			Digital GND
82,83	X0,X1			Oscillation circuit
84	Vcc			Digital power supply
85-92	AD00-AD07	I/O	C	External data bus input/output
92	AD07	I/O	C	External data bus input/output
93	A0	O	C	External address output
94-100	NC			Not used

*PD6237B

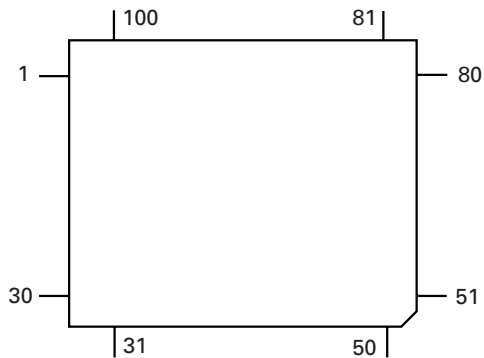


Format	Meaning
C	C MOS
N	N channel open drain

● Pin Functions (SED1540F0A)

Pin No.	Pin Name	I/O	Function and Operation
1-72	SEG71-0	O	Output for driving segment of LC
73	A0	I	Normally the lowest bit in the address bus of MPU is connected to distinguish between data and command.
74,75	OSC1,2		Terminal to connect resistor for internal oscillation
76	E(RD)	I	Enable clock input terminal of 68-system MPU Terminal to connect RD signal of 80-system MPU. While this signal is set to "L," data bus of SED1540 will be output.
77	R/W(WR)	I	Input terminal of read/write control signal Terminal to connect write signal of 80-system MPU
78	VSS		0V connect to system GND
79-86	DB0-7		8-bit duplex data bus to be connected to a data bus of 8-bit or 16-bit standard MPU
87	VDD		Connect to +5V power supply VDD
88	RES		Can be set to initial setting by setting RES to "L" when using 68-system MPU, or by setting RES to "H" when using 80-system MPU.
89	FR	I/O	Input/output terminal of LC alternating signal
90	V3		Multilevel power supply for driving LC
91	\overline{CS}	I	Chip select signal. Normally, signal obtained by decoding address bus signal is input.
92	NC		Not used
93	M/S		Terminal to select between master and slave operation to SED1540. Connect to VDD or VSS.
94,95	V2,1		Multilevel power supply for driving LC
96-99	COM0-3	O	Output for LC common (low) driving
100	SEG72	I/O	Output for driving segment of LC

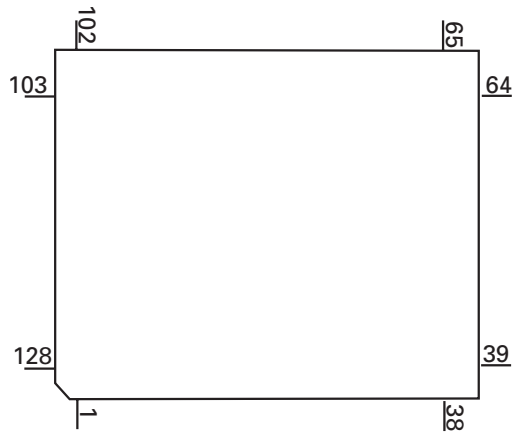
SED1540F0A



● Pin Functions (SED1526F0A)

Pin No.	Pin Name	I/O	Function and Operation
1-5	V1-V5		Multilevel power supply for driving LCD
6	VR	I	Voltage adjustment
7	VDD		+5V power supply
8	VOUT	O	Ascending voltage output
9	CAP2-	O	Ascending voltage capacitor connection
10	CAP2+	O	Not used
11	CAP1-	O	Ascending voltage capacitor connection
12	CAP1+	O	Ascending voltage capacitor connection
13	VSS		GND
14	M/S	I	IC master/slave operation select
15	SR2	I	MPU interface select, Parallel/serial data input select, Reset input select
16	SR1	I	MPU interface select, Parallel/serial data input select, Reset input select
17	WR	I	MPU WR signal connection
18	RD	I	MPU RD signal connection
19	CS2	I	Chip select signal
20	CS1	I	Chip select signal
21	A0	I	Data/command discrimination
22	FR	O	Not used
23	CL	O	Not used
24-31	D0-D7	I/O	Serial data bus
32-39	COM0-7	O	Output for LCD common driving
40-48	NC		Not used
49-110	SEG0-61	O	Output for driving segment of LCD
111-128	NC		Not used

SED1526F0A

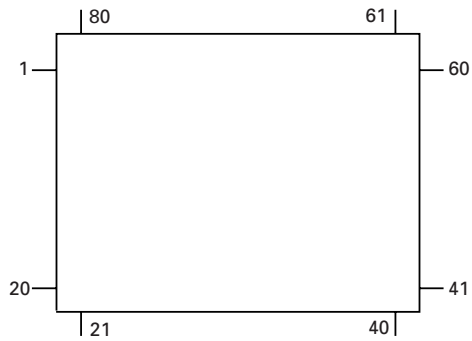


● Pin Functions (PD5445A)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	SPCK	I	C	Connect to GND
2	NC			Not used
3	VST	O	C	Electronic volume strobe output
4	VDT	O	C	Electronic volume data output
5	VCK	O	C	Electronic volume clock output
6	CNVss	I		Connect to Vss
7	MCKRQ	I	C	CD unit MCK request input
8	NC			Not used
9	RESET	I		Micro-computer hard reset input
10	Xout	O		System clock output
11	Vss	I		GND
12	Xin	I		System clock input
13	Vcc	I		Micro-computer power supply 5V
14	NMI	I	C	Connect to Vcc
15	BMUTEIN	I	C	CD unit LR clock supply data
16	SPRQ	I	C	Connect to GND
17	BRST	I	C	P-Bus reset input
18	ADTEST	I	C	A.EQ test mode start
19	MICSNS	I	C	A.EQ mic connection data
20	ADSEL	O	C	Signal/A.EQ mic input select
21	MUTERQ	O	C	Hard mute output
22,23	NC			Not used
24	DSPOUT	O	C	DSP serial data output
25	DSPIN	I	C	DSP serial data input
26	DSPCK	O	C	DSP serial clock output
27	NC			Not used
28	BSO	O	C	P-BUS data output
29	BSI	I	C	P-BUS data input
30	BSCK	I/O	C	P-BUS serial clock input/output
31	NC			Not used
32	BSRQ	I/O	C	Service request input
33	BRXEN	I/O	C	Reception enable input
34,35	DSPERR1	I	C	Connect to GND
36	DZF1	I	C	Front digital 0 data input
37	DZF0	I	C	Rear digital 0 data input
38	DZF2	I	C	Sub woofer digital 0 data input
39	TESTIN	I	C	test program start/enable
40	DSPPW	O	C	DSP power supply switching
41	NGO	O	C	Noise gate ON/OFF
42-48	NC			Not used
49	FMUTE	O	C	Not used
50	SWMUTE	O	C	Not used
51	VOICE	I	C	Connect to GND
52-58	NC			Not used
59	IFHIZ	I	C	DSP micro-computer port Hiz set (test mode port)
60	DSRST	O	C	TC9331 hard reset
61	PD	O	C	AK7712 power down
62	AKRST	O	C	AK7712 reset
63	DSPCS2	O	C	AK7712 chip select
64	DSPCS1	O	C	TC9331 chip select
65	DSPRQ	O	C	AK7712 data output request
66	DSPCD	O	C	TC9331 command/data
67	DSPRDY	I	C	AK7712 data ready
68	DSPACK	I	C	DSP data write ready/ACK
69	SMODE	O	C	AK7712 master/slave
70	EMPIN	I	C	CD unit emphasis data input
71	EMPOUT	O	C	DAC emphasis output

Pin No.	Pin Name	I/O	Format	Function and Operation
72	LRCKK	O	C	LRCK/BCLK select
73	SDATAK	O	C	Audio data select:LRCKK inverted gate
74	NOISE	I		ASL noise input
75	AVss	I		Connect Vss
76	MCKOUT	O	C	CD MCLK gate control
77	Vref	I		AD select reference voltage input
78	AVcc	I		Connect to Vcc
79	MO/ST	I	C	Connect to GND
80	NC			Not used

*PD5445A



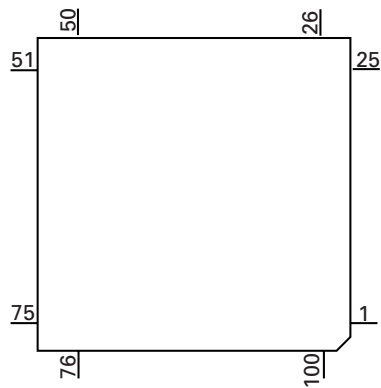
Format	Meaning
C	C MOS

● Pin Functions (AK7712AVT)

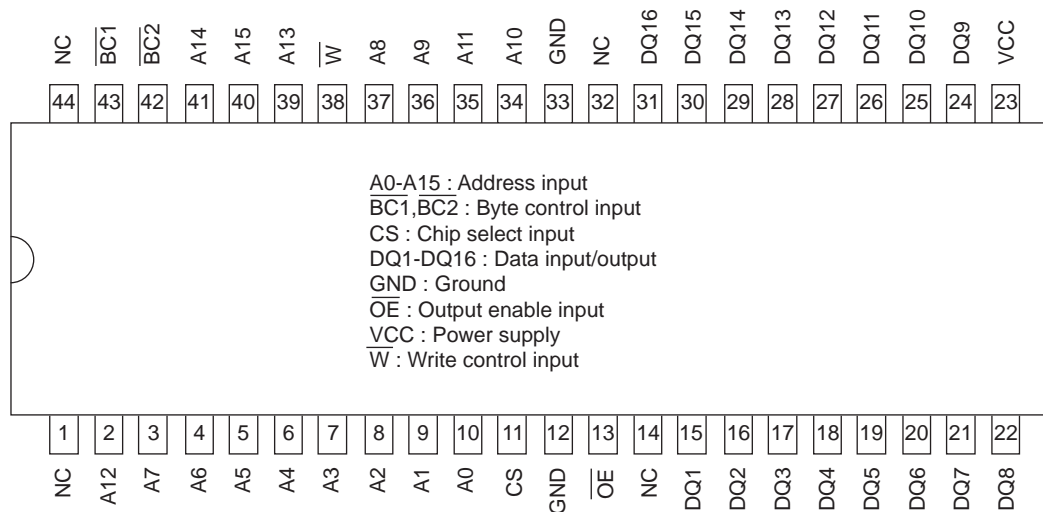
Pin No.	Pin Name	I/O	Function and Operation
1	TST11	I	Test input 1
2	OPCL	I	ADC,DAC connection select
3	PDAD	I	AD reset control
4	PDDA	I	DA reset control
5	PD	I	Power down
6	RST	I	Reset input
7	TSTIO1	I/O	Test input/output 1
8	TSTIO2	I/O	Test input/output 2
9	TSTIO3	I/O	Test input/output 3
10,11	DVB		Digital PCB power supply
12	SDIN2	I	Serial data input 2
13	SDAD	O	Serial data output 2
14	SDOUT2	O	Serial data output 3
15	SDDA	I	Serial data input 3
16	SDDA2	I	Serial data input 4
17	SDOUT3	O	Serial data output 4
18	SDOUT1	O	Serial data output 1
19	SDIN1	I	Serial data input 1
20	SMODE	I	Interface clock select
21	BCLK	I/O	Clock input/output for serial data input signal input/output
22	LRCK	I/O	L/R channel identification signal input/output
23	CLK0	O	Master clock output
24	DVDD		Digital power supply
25	DVSS		Digital GND
26	XTI	I	Clock input
27	XTO	O	Oscillator output
28	TSTI2	I	CLKO output control
29	CS	I	Chip select input for micro-computer interface
30	WRQ	I	Command register reset input for micro-computer interface
31	DVSS		Digital GND
32	DVDD		Digital power supply
33	SCLK	I	Serial data input clock input for micro-computer interface
34	SI	I	Serial data input for micro-computer interface
35	WRDY	O	Data write ready output for micro-computer interface
36	DRDY	O	Output data ready output for micro-computer interface
37	SO	O	Serial data output for micro-computer interface
38	CASRF	O	External DRAM CAS/pseudo SRAM refresh
39	RASCE	O	External DRAM RAS/pseudo SRAM-ce
40	WE	O	External SRAM/pseudo SRAM/DRAM write signal output
41-48	A16-A9	O	External RAM address output
49	DVSS		Digital GND
50	DVDD		Digital power supply
51-59	A8-A0	O	External RAM address output
60	OE	O	External SRAM/pseudo SRAM/DRAM output enable signal output
61-68	IO0-IO7	I/O	External RAM data input/output
69	DVSS		Digital GND
70	DVDD		Digital power supply
71	DZFSET	I	Zero position detect setup
72	DVSS		Digital GND
73	DVDD		Digital power supply
74,75	DVB		Digital PCB power supply
76	DZF2	O	Zero input detect (DAC2)
77	DZF1	O	Zero input detect (DAC1)
78	NC		Not used
79	AVB		Analog PCB power supply
80	AOUTR2	O	DAC2 Rch analog output 2
81	AOUTL2	O	DAC2 Lch analog output 2
82	NC		Not used

Pin No.	Pin Name	I/O	Function and Operation
83	AOUTR1	O	DAC1 Rch analog output 1
84	AOUTL1	O	DAC1 Lch analog output 1
85	VRDAL	I	DAC reference voltage input
86	AVSS		Analog GND
87	AVDD		Analog power supply
88	VRDAH	I	DAC reference voltage input
89	NC		Not used
90	AINR-	I	ADC Rch analog inverted input
91	AINR+	I	ADC Rch analog input
92	AINL-	I	ADC Lch analog inverted input
93	AINL+	I	ADC Lch analog input
94	VCOM	O	Common voltage
95	VRADL	I	ADC reference voltage input
96	AVSS		Analog GND
97	AVDD		Analog power supply
98	VRADH	I	ADC reference voltage input
99	AVB		Analog PCB power supply
100	NC		Not used

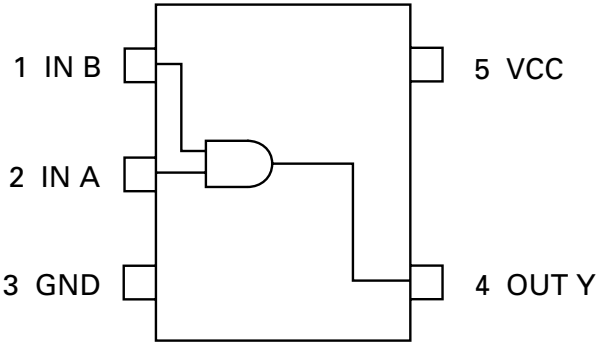
AK7712AVT



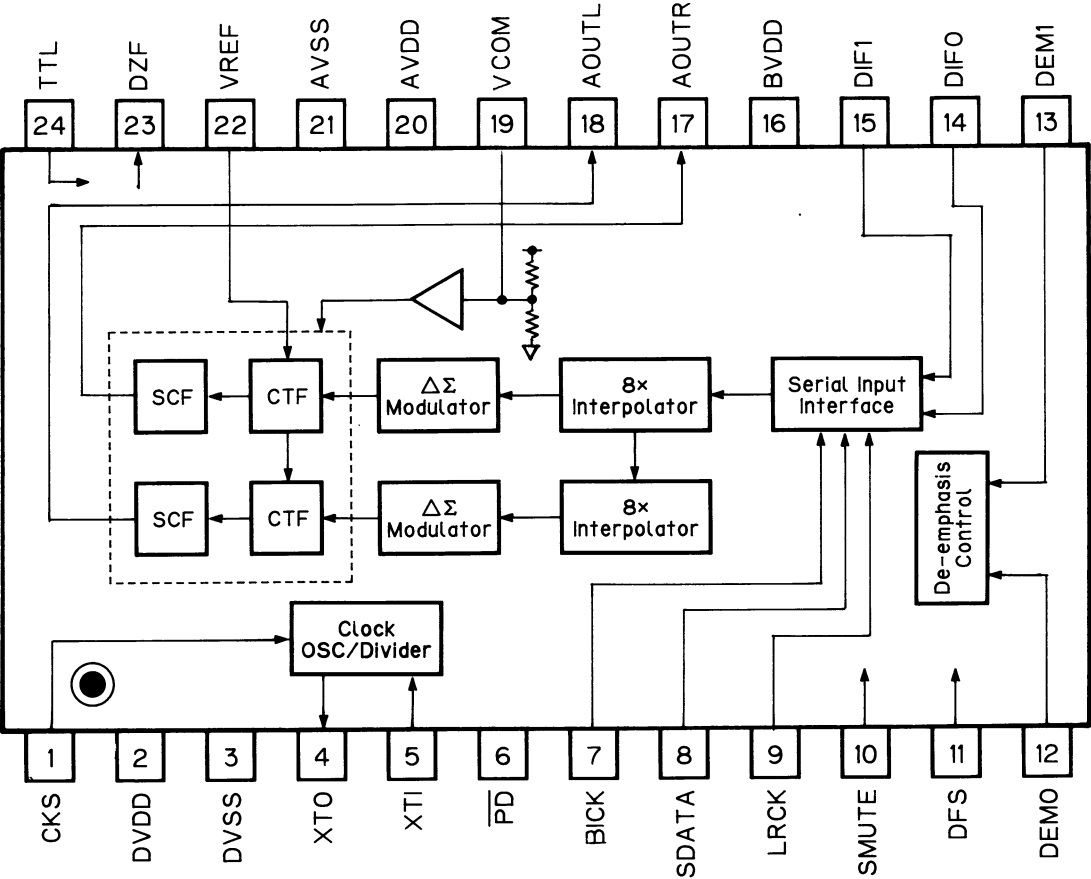
GGC1325(M5M51016BTP-70LL)



TC7S08FU



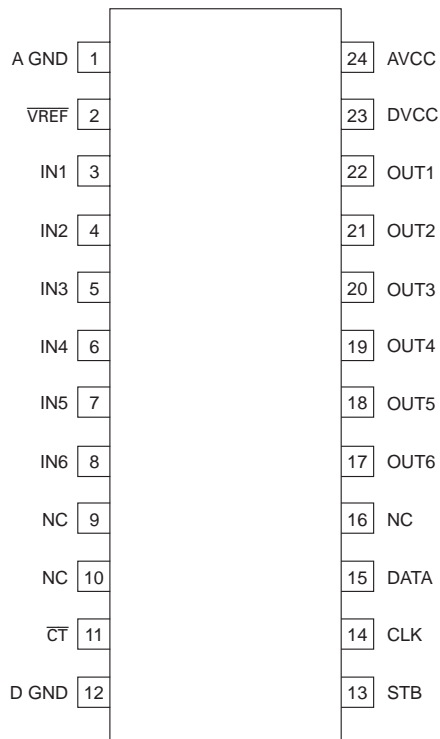
AK4321VF



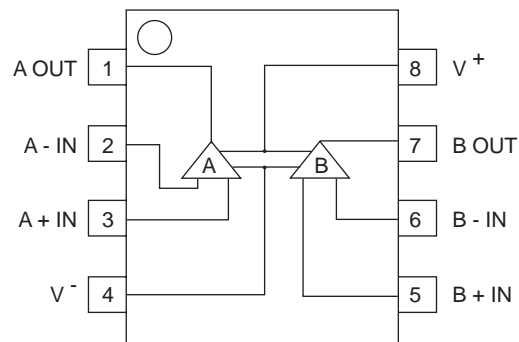
● Pin Functions (PM0017AM)

Pin No.	Pin Name	Function and Operation
1	AGND	Analog GND
2	VREF	Reference voltage noise cut
3-8	IN1-6	CH1-6 input
9,10	NC	Not used
11	CT	Terminal to set forced switching time
12	DGND	Digital GND
13	STB	Strobe input
14	CLK	Clock input
15	DATA	Data input
16	NC	Not used
17-22	OUT6-1	CH6-1 output
23	DVCC	Digital GND
24	AVCC	Analog GND

PM0017AM

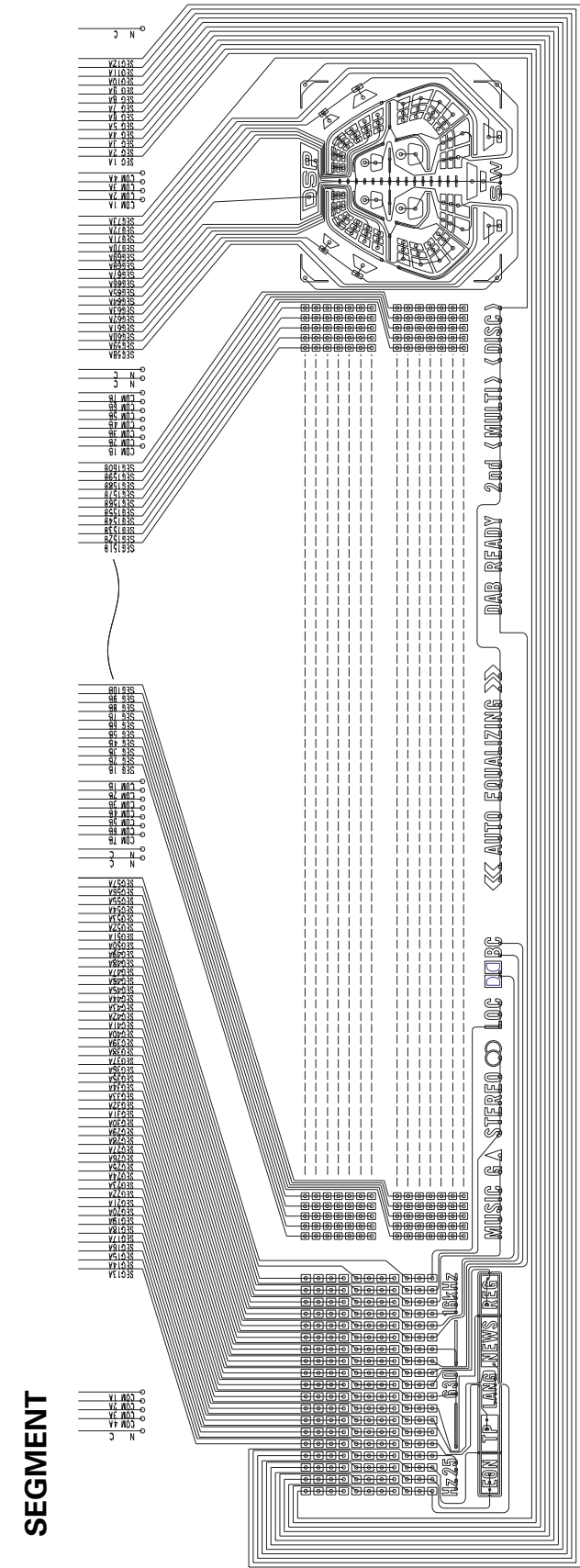


NJM4580M



7.1.2 DISPLAY

- CAW1471 (DEH-P945R/EW)
- CAW1493 (DEX-P99R/EW)

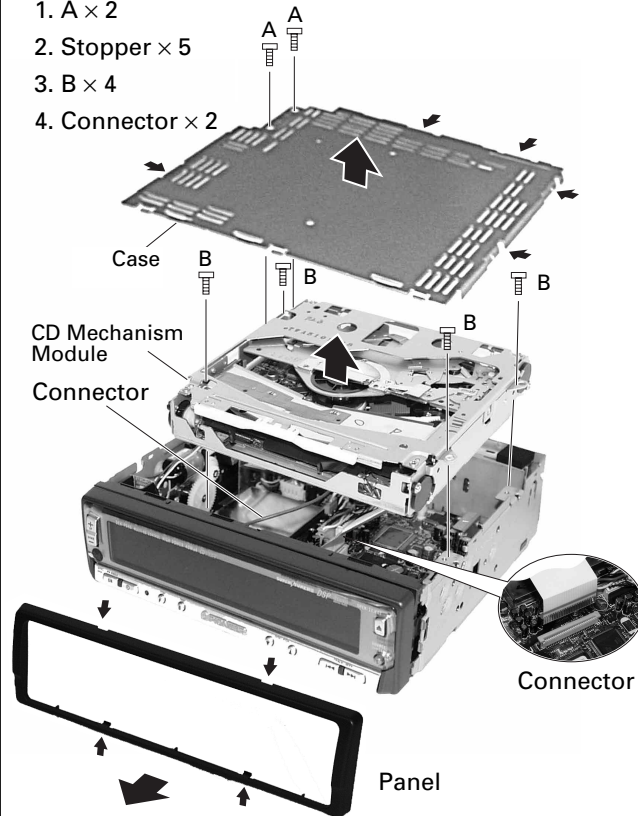


7.2 DIAGNOSIS

7.2.1 DISASSEMBLY

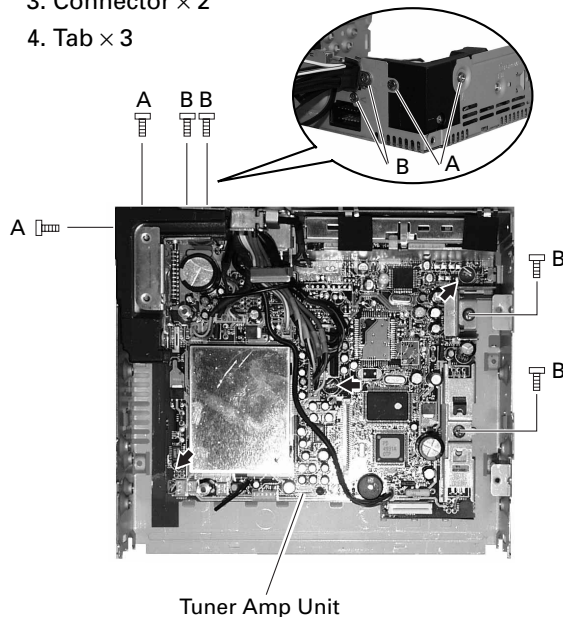
● Removing the Case, Panel and CD Mechanism Module

1. A × 2
2. Stopper × 5
3. B × 4
4. Connector × 2



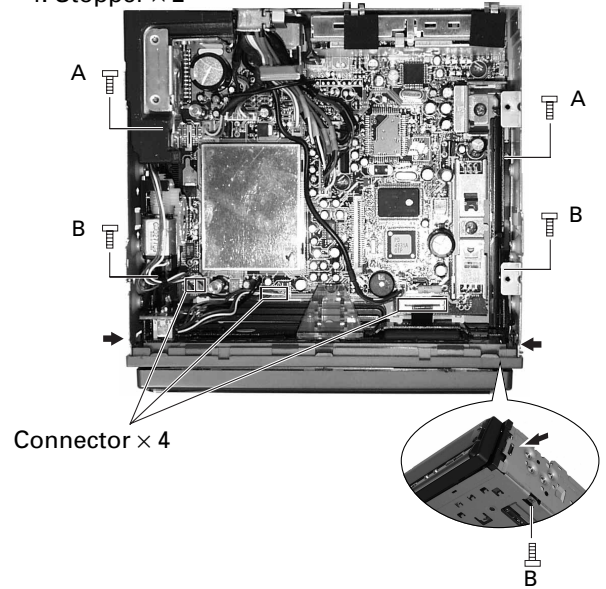
● Removing the Tuner Amp Unit

1. A × 2
2. B × 4
3. Connector × 2
4. Tab × 3



● Removing the Panel Assy

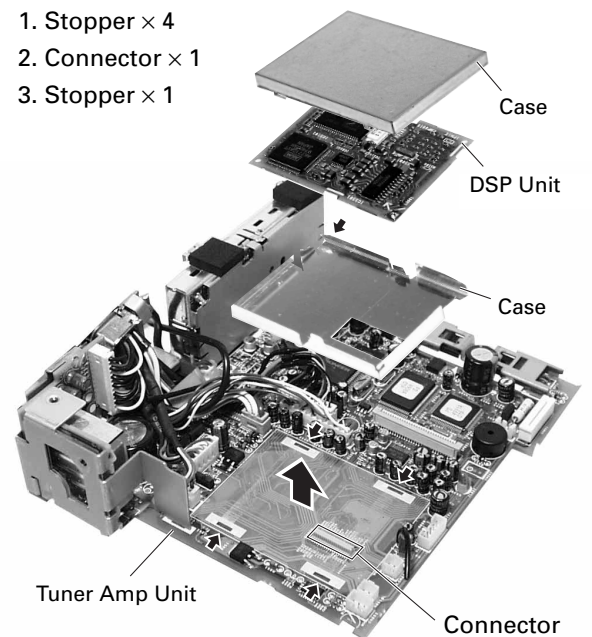
1. A × 2
2. B × 2
3. Connector × 4
4. Stopper × 2



Note : Remove the Screw B from outside the bottom.

● Removing the DSP Unit

1. Stopper × 4
2. Connector × 1
3. Stopper × 1



Note : Each five place stopper are soldered.

7.2.2 TEST MODE

● CD Test Mode

1)Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFO(approx. 2.5V) instead of GND. If REFO and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.
Do not connect the negative probe of the measuring equipment to REFO and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFO with the channel 2 negative probe connected to GND.
Since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.
If by accident REFO comes in contact with GND, immediately switch the regulator or power OFF.
- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.
- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.
- Test mode starting procedure
Switch ACC, back-up ON while pressing the **TA** and **TR-** keys together.

- Test mode cancellation
Switch ACC, back-up OFF.
- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit. Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.
*During PLAY, even if the eject button is pressed, the disc will not be ejected and the unit will remain in the PLAY mode.
*The unit will not load a disc.
When the unit malfunctions this way, either re-position the light source, move the unit or cover the photo transistor.
- When loading and unloading discs during adjustment procedures, always wait for the disc to be properly clamped or ejected before pressing another key. Otherwise, there is a risk of the actuator being destroyed.
- Turn power off when pressing the button TR+ or the button TR- key for focus search in the test mode. (Or else lens may stick and the actuator may be damaged.)
- SINGLE/4TRK/10TRK/32TRK will continue to operate even after the key is released. Tracking is closed the moment C-MOVE is released.
- JUMP MODE resets to SINGLE as soon as power is switched OFF.

● S-MD Test Mode

This mode is used by service personnel to solve problems when the mechanism is malfunctioned. Normally users do not enter S-MD Test mode.

(1) Test mode input

1) How to input

Input in the same manner as with inputting in Test mode of CDS, CDM, etc.

To enter Test mode, reset the system and set ACC to ON or connect the detach grill, then press xx and xx keys (see CD) simultaneously. Then, use the SOURCE key (or TAPE or SOURCE key on the remote control unit) to activate MDS source, and input in MDS Test mode.

Normally, the system does not change to MDS source when no disc is loaded. In Test mode, the system changes to MDS source without a disc loaded, and enters Test mode.

2) Beep sound

- With '97 autumn or later models, the system beeps to confirm that the system has entered Test mode.

(2) Canceling Test mode

1) Internal MDS (P-BUS)

- With '97 autumn or later models, reset the system, set ACC to OFF, BACKUP to OFF, or disconnect the detach grill to cancel Test mode. (Set ctestf to 0 if Clear RAM is called as preprocessing of standby.)

2) Slave MDS (IP-BUS)

In addition to the method mentioned in 1), Slave MDS must be reset, too.

(3) Effective keys in Test mode

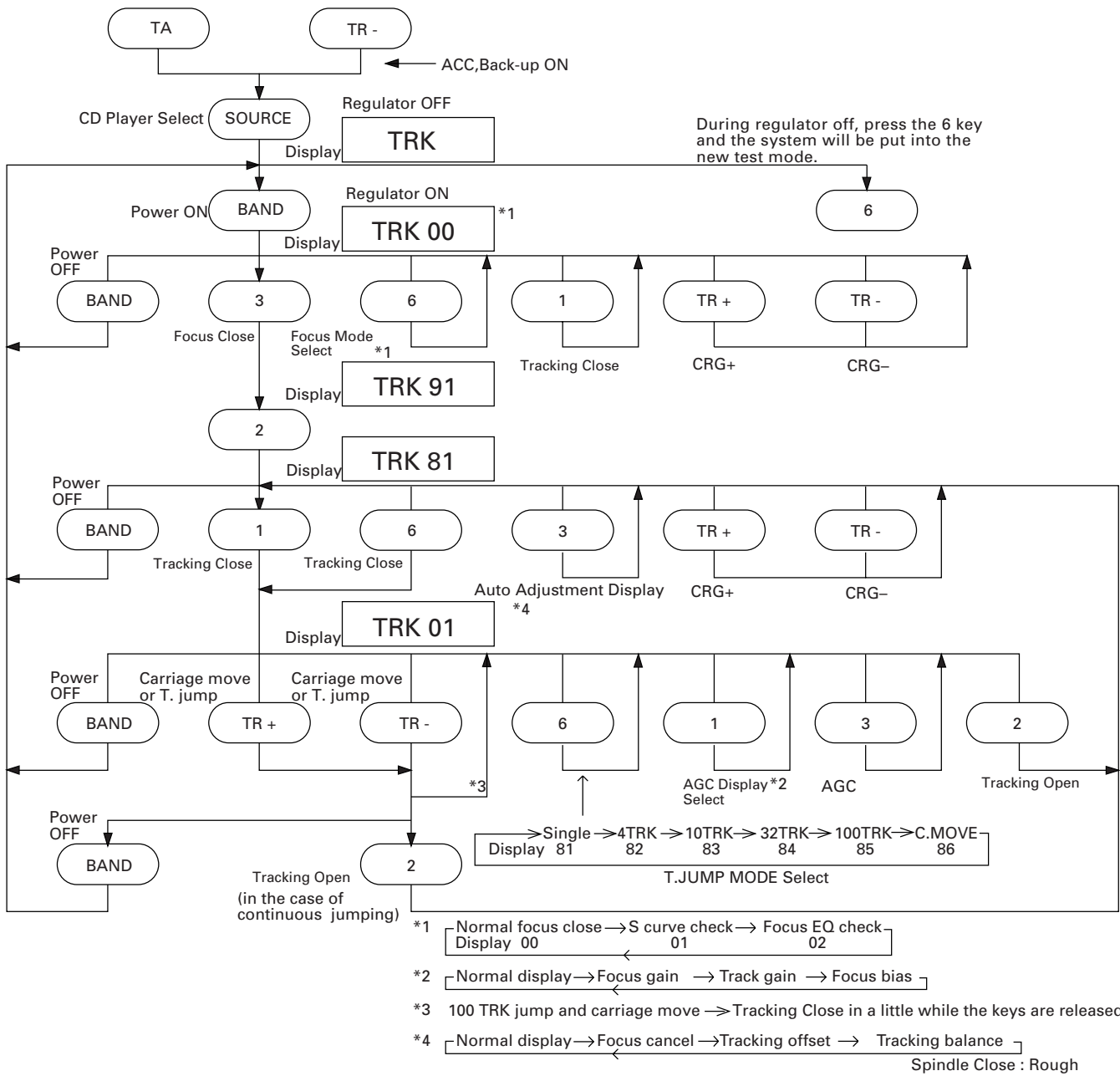
In Test mode, some keys require special key decoding.

Key name	Key operation
BAND	To turn the POWER ON/OFF
→	To move thread, jump, change set values, etc
←	To move thread, jump, change set values, etc
▲	To advance MENU
▼	To reverse MENU
PGM	To enter Test STOP mode
FUNCTION	To select a MENU
DISP	SRV mode (To change the disc type.)

Keys not provided on the main unit can be found on the remote control unit.

Operation specifications and details are in accordance with the specifications of MDS.

● Flow Chart



● SYSTEM Test Mode

Function	Operation Key · Trigger	Remarks	Display
Display Test Mode	Set Acc to ON or connect the detach grille, while pressing the S/A and → keys simultaneously. Then, press the S/A and → keys simultaneously, while the source is ON. To cancel Display Test Mode, press the Reset button.	Immediately after resetting the system	All LCDs light up.
TEST MODE	Set ACC to ON or connect the detach grille, while pressing the TA and ← keys simultaneously. To cancel Test Mode, set ACC to OFF or press the Reset button.	Immediately after resetting the system	

● Error Number Indication

The system enters error mode to display the cause of error with a number when the system cannot operate CD or stops operation because of an error. The purpose of this measure is to reduce frequency of calls from users asking help for problems that are caused by incorrect operation by user, as well as to assist analysis and repair in servicing.

(1) Basic means of display

- An error code will be written on DMIN (minute area for display) and DSEC (second area for display) when CSMOD (CD mode area for system) is SERBORM.

The same data will be written on DMIN and DSEC.

DTNO shall be blank as before.

- Display examples of the head unit

Error codes will be displayed as shown below, depending on the capability of LCD. An error number will be displayed in the place of "xx."

- 8-digit display ERROR-XX
- 6-digit display ERR-XX or Err-XX
- 4-digit display E-XX

With OEM products, display of error codes shall be according to the specifications of the manufacturer.

(2) Error codes

Error code	Classification	Description	Cause / Detail
10	ELECTRIC	Carriage home failure	Carriage doesn't move to or from the innermost position →Home switch failed and/or carriage immobile
11	ELECTRIC	Focus failure	Focus failed →Defects, disc upside-down, severe vibration
12	ELECTRIC	SETUP failure Subcode failure	Spindle failed to lock or subcode unreadable →Spindle defective, defect, severe vibration
14	ELECTRIC	Mirror failure	Unrecorded CD-R The disc is upside-down, defects, vibration
17	ELECTRIC	Set up failure	AGC protect failed →Defects, disc upside-down, severe vibration
19	ELECTRIC	Improper T.BAL adjustment	Value of T.BAL adjustment is out of parameter.
30	ELECTRIC	Search time out	Failed to reach target address →Carriage / tracking defective and/or defects
A0	SYSTEM	Power failure	Power overvoltage or short circuit detected →Switching transistor defective and/or power abnormal

(4) Number of error codes

One hundred error codes (00 to 99) will be available.

(5) Remarks

- Error codes are not displayed for the mechanism alone (because CD is OFF when an mechanical error is generated).
- When the system cannot read TOC, it is not deemed as an error, and the system continues operation to a certain extent.
- Be sure to take measures as shown in the display examples whenever designing a new head unit.
- The first digit of an error code has a meaning as follows:
 - 1X : Error related to setup
 - 3X : Error related to the search function
 - AX : Other errors

● New Test Mode

When S-CD is specified as the source, basically the system plays as normal operation. After setup, the system displays the cause and time (absolute time) of an error if focus search is improper, spindle lock is removed, subcode cannot be read, or sound is skipped. During setup, the system displays the operation status of CD control software (internal RAM : CPOINT). The purpose of these displays and functions are to detect aging of servicing, as well as to improve efficiency of defect analysis.

(1) How to enter NEW TEST Mode

1. Reset the system by pressing keys (depending on the product) to enter the conventional Test mode.
2. Select S-CD as the source by pressing the source or CD key, then inserting a disc. Confirm that the regulator is OFF. Press the Switch Jump Mode key.
3. After that, the system will stay in the new Test mode, regardless of whether S-CD is OFF or ON.
To exit from the new Test mode, reset the system.
See the test mode flow chart Page 104.

(2) Relations of keys

keys	Test Mode		New Test Mode	
	Regulator OFF	Regulator ON	PLAY in progress	Error Protection
BAND	To Regulator ON	To Regulator OFF	—	Time / Err No.select
TR+	—	FWD-Kick	FF / TR+	—
TR-	—	REV-Kick	REV / TR-	—
1	—	Tracking Close	Scan	—
2	—	Tracking Open	RPT	—
3	—	Focus Close	RDM	—
—	—	Focus Open	—	—
—	—	Jump Off	—	—
6	To New Test Mode	Jump Mode select	Auto / Manu	T.No. / Time select

Operations, such as EJECT, CD ON/OFF are performed normal mode.

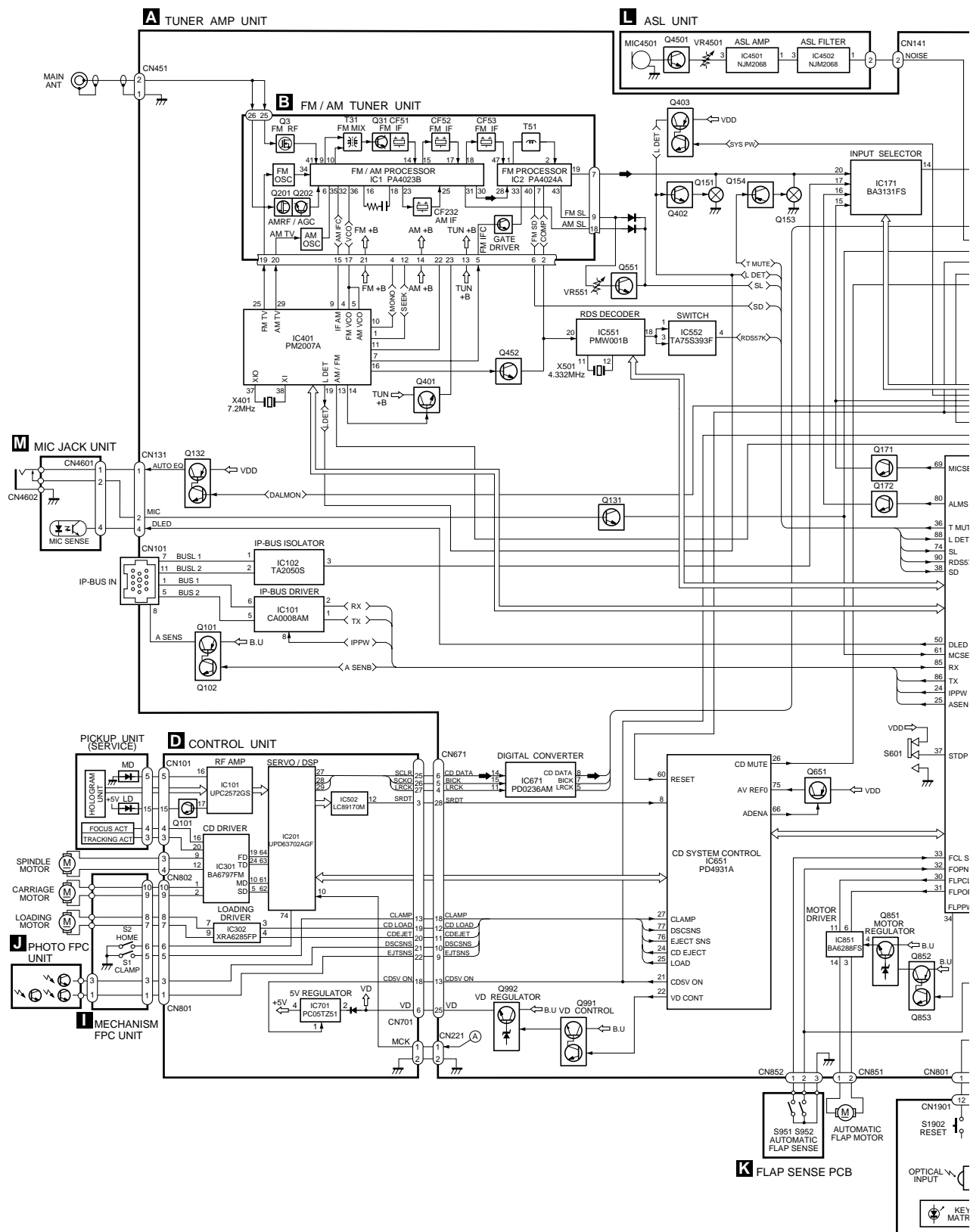
(3) Error Cause, Error Code

Code	Classification	Description	Cause / Details
40	ELECTRIC	Put out of focus	FOK=Low has continued for 100 msec →Damaged or soiled disc. vibration, or detective servo
41	ELECTRIC	Spindle unlock	LOCK=has continued for 100 msec →Damaged or soiled disc. vibration, or detective servo
42	ELECTRIC	Failed to read subcode	The system could not read subcode for 100 msec →Damaged or soiled disc. vibration, or detective servo
43	ELECTRIC	Sound skipped	The last-address-memory function activated →Damaged or soiled disc. vibration, or detective servo

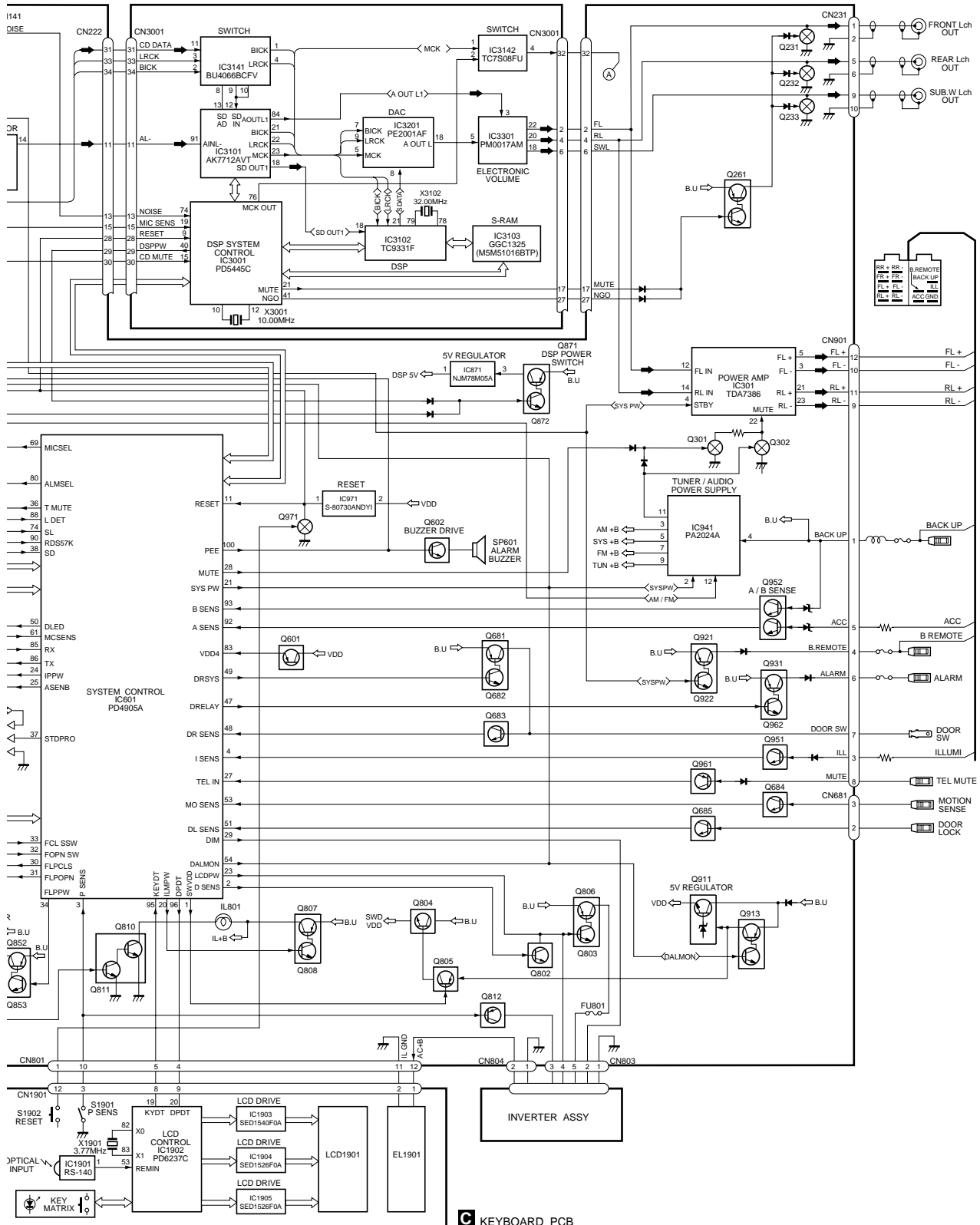
There will be no mechanical error during aging. Error codes should be displayed in the same manner as in Normal mode.

7.3 BLOCK DIAGRAM

● DEH-P945R/EW



F DSP UNIT

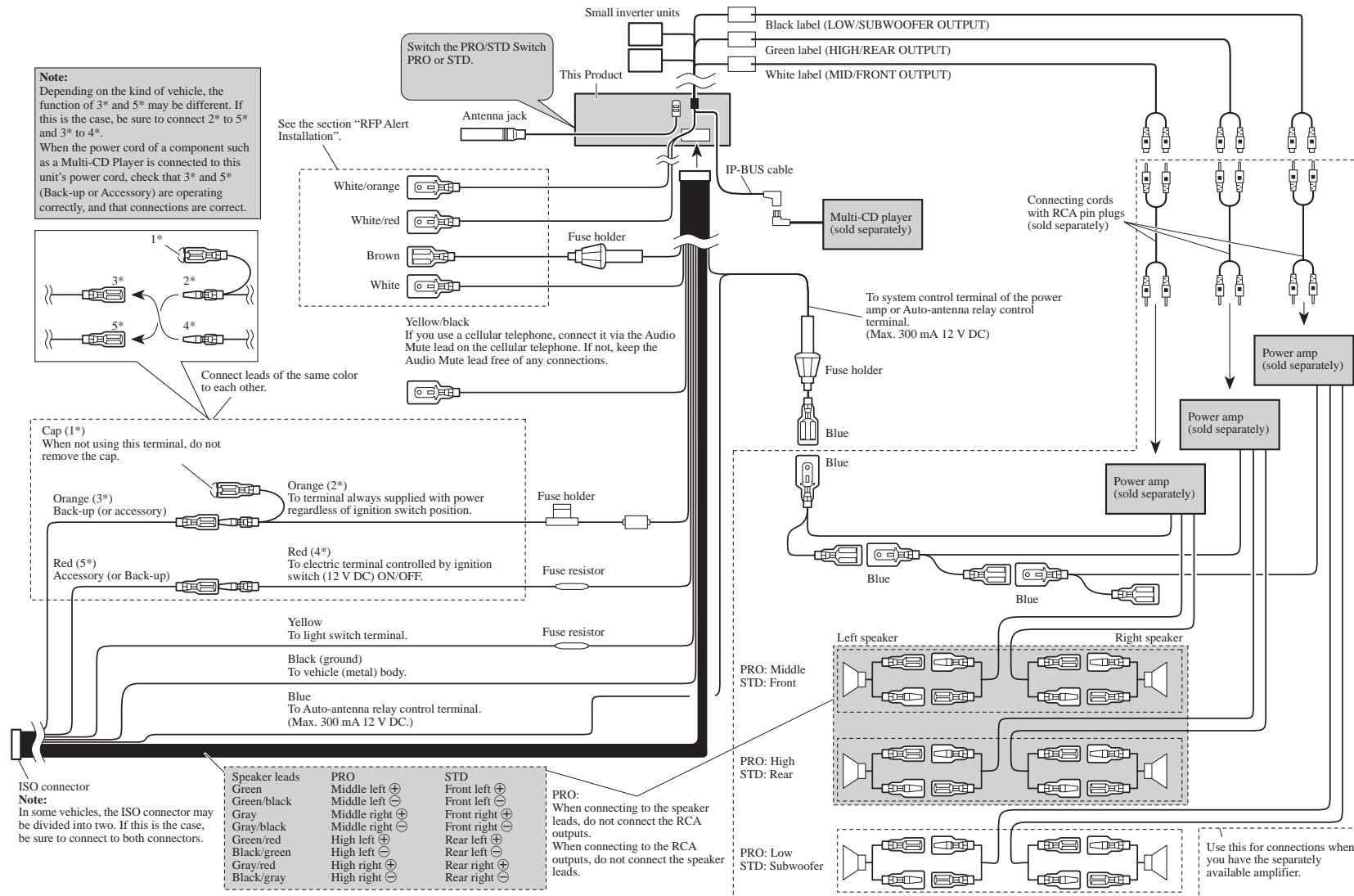


C KEYBOARD PCB

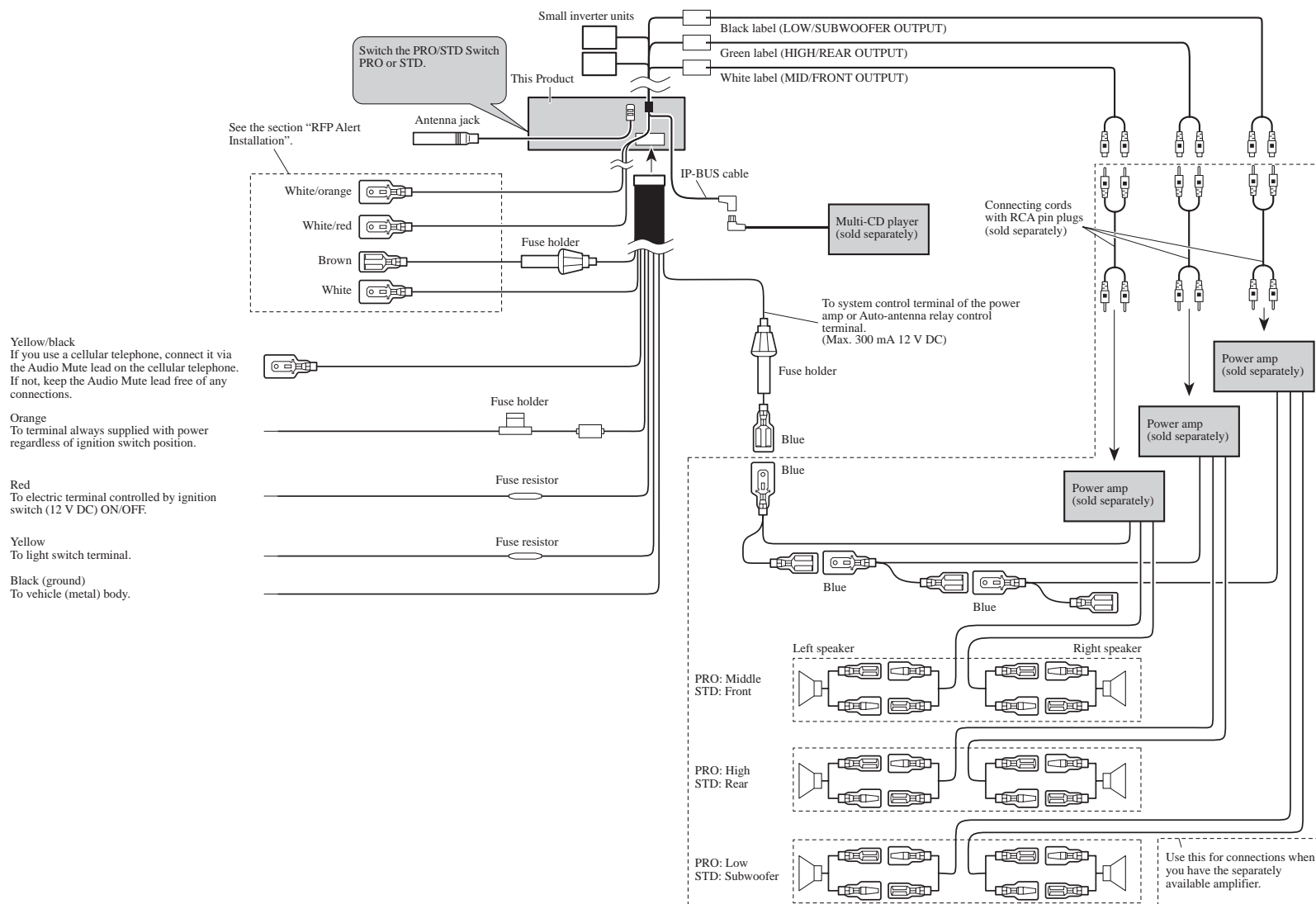
8. OPERATIONS AND SPECIFICATIONS

8.1 OPERATIONS

● Connection Diagram (DEH-P945R/EW)

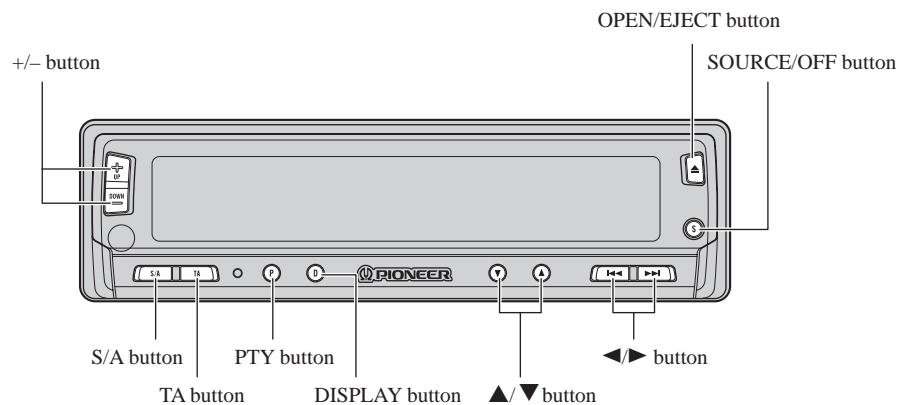


● Connection Diagram (DEX-P99R/EW)

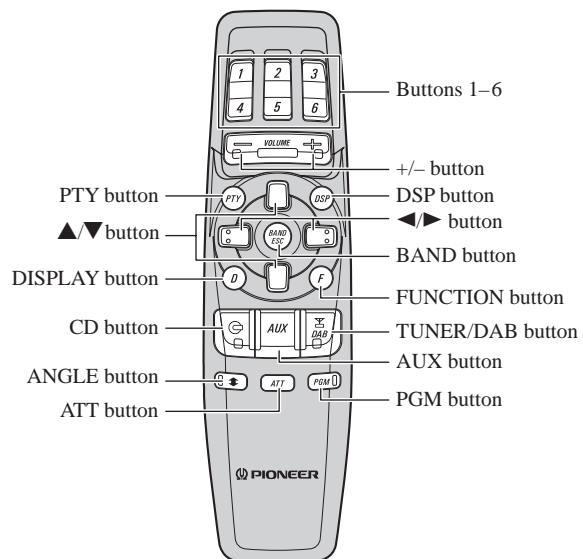


Key Finder

Head Unit

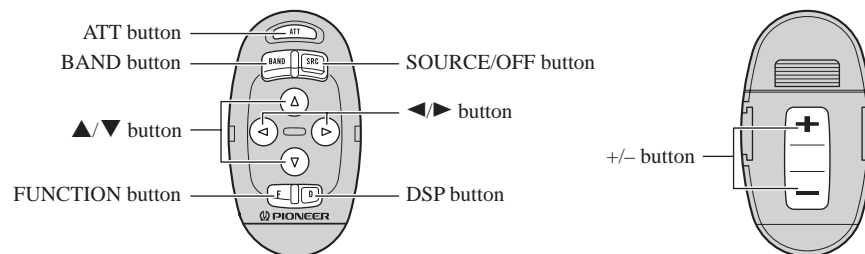


Remote Controller



Steering Remote Controller

Buttons on the remote controller or head unit with the same name have the same function.

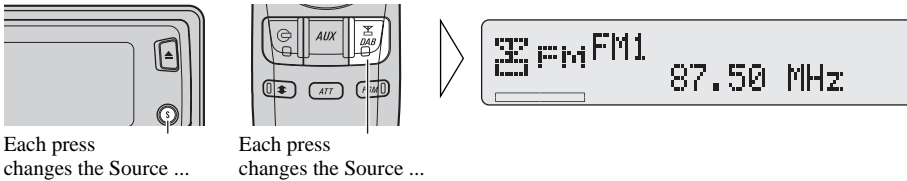


Tuner Operation

This product's AF function can be switched ON and OFF. AF should be switched OFF for normal tuning operations.

Basic Operation of Tuner

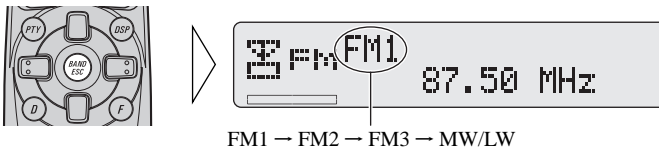
1. Select Tuner.



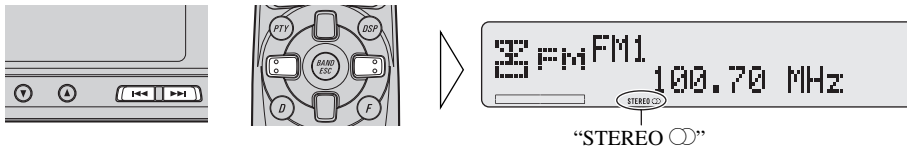
Each press changes the Source ...

The program service name or frequency appears on the display.

2. Select the desired band.



3. Tune the receiver to a higher or lower frequency.



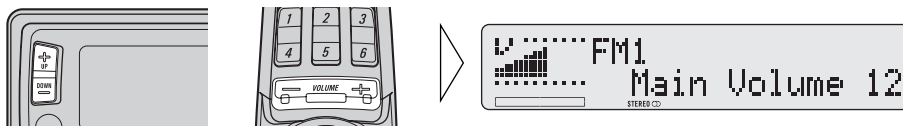
This product's tuner lets you select the tuning by changing the length of the time you press the button.

Manual Tuning (step by step)	0.3 seconds or less
Seek Tuning (automatically)	0.3–2 seconds
Manual Tuning (continuously)	2 seconds or more

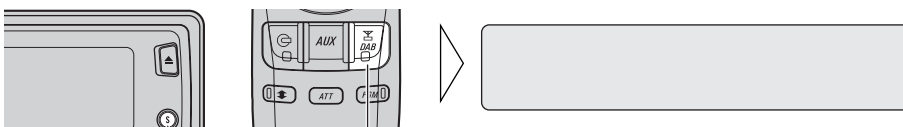
- Note:**
- “STEREO” indicator lights when a stereo station is selected.
 - To select a weak broadcasting station that cannot be tuned in with the Seek Tuning function, tune in with Manual Tuning.

Tuner Operation

4. Raise or lower the volume.



5. Turn the source OFF.



Hold for 1 second

Each press changes the Source ...

Entering the Function Menu

In this menu you can select tuner functions.

• Select the desired mode in the Function Menu.



Each press changes the Mode ...

Each press of the FUNCTION button selects the mode in the following order:

BSM → Regional* → Local → TA* → AF*

* Regional, TA and AF are RDS functions for FM bands. You cannot switch to these modes when selecting MW or LW band. Refer to “Using the RDS Functions” for details and instructions on how to use these functions.

To cancel the Function Menu, press the BAND button.

Note:

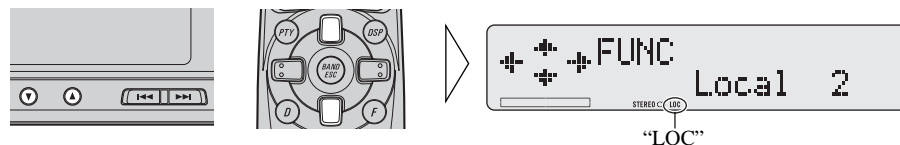
- After entering the Function Menu, if you do not perform an operation within about 30 seconds, the Function Menu is automatically canceled.

Local Seek Tuning

This mode selects only stations with especially strong signals.

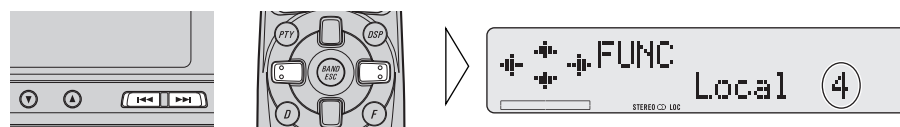
1. Select the Local mode (Local) in the Function Menu.

2. Switch the Local mode ON or OFF.



“LOC”

3. Select the desired Local Seek sensitivity.



FM : Local 1 ↔ Local 2 ↔ Local 3 ↔ Local 4

MW/LW : Local 1 ↔ Local 2

Note:

- The “Local 4” setting allows reception of only the strongest stations, while lower settings let you receive progressively weaker stations.

To cancel the Function Menu, press the BAND button.

Using the RDS Functions

What is RDS?

RDS (Radio Data System) is a system for transmitting data along with FM programs. This data, which is inaudible, provides a variety of features such as: program service name, program type display, traffic announcement standby, automatic tuning and program type tuning, intended to aid radio listeners in tuning to a desired station.

Note:

- RDS service may not be provided by all stations.
- RDS functions, like AF (Alternative Frequencies search) and TA (Traffic Announcement standby), are only active when your radio is tuned to RDS stations.

Switching the Frequency Display

This unit displays the names (Program Service Name) of networks/stations providing RDS Services and PTY Information. You can also switch from Program Service Name display to frequency display.

- **When you want to know the frequency of the current station, change the display.**



Each press
changes the Display ...

Note:

- After switching displays, if you do not perform an operation within 8 seconds, the Program Service Name is automatically displayed.

PTY Information

PTY (Program Type ID code) information for the currently tuned station appears on the display.

Frequency

The frequency of the current station appears on the display.

AF Function

The AF (Alternative Frequencies search) function is used to search for other frequencies in the same network as the currently tuned station. It automatically retunes the receiver to another frequency in the network which is broadcasting a stronger signal when there are problems with reception of the currently tuned station or better reception is possible on a different frequency.

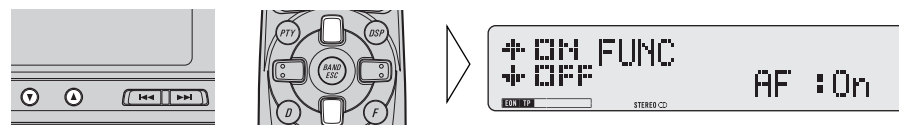
Note:

- AF tunes the receiver only to RDS stations when you use Seek tuning or BSM Auto Memory with the AF Function ON.
- When you recall a preset station, the tuner may update the preset station with a new frequency from the station's AF list. (This is only available when using presets on the FM1 band.) No preset number appears on the display if the RDS data for the station received differs from that for the originally stored station.
- Sound may be temporarily interrupted by another program during an AF frequency search.
- When the tuner is tuned to a non-RDS station, the "AF" indicator flashes. (You can confirm by switching to the Status display.)
- AF can be switched ON or OFF independently for each FM band.

Activating/Deactivating the AF Function

AF is set to ON by default.

1. **Select the AF mode (AF) in the Function Menu.**
2. **Activate or deactivate AF while in an FM band.**



To cancel the Function Menu, press the BAND button.

Using the RDS Functions

PI Seek Function

The tuner searches for another frequency broadcasting the same programming. "Seek" appears on the display and the radio volume is muted during a PI Seek. The muting is discontinued after completion of the PI Seek, whether or not the PI seek was successful. If the PI Seek is unsuccessful, the tuner returns to the previous frequency.

PI Seek

If the tuner fails to locate a suitable alternative frequency or if the broadcasting signal is too weak for proper reception, the PI Seek will automatically start.

Auto PI Seek (for preset station)

When preset stations cannot be recalled, as when traveling long distances, the product can be set to perform PI Seek also during preset recall. The default setting for Auto PI Seek is OFF.

Note:

- Refer to "Initial Setting" for details on how to switch Auto PI Seek ON/OFF.

Regional Function

When AF is used to retune the tuner automatically, Regional (Regional) limits the selection to stations broadcasting regional programs.

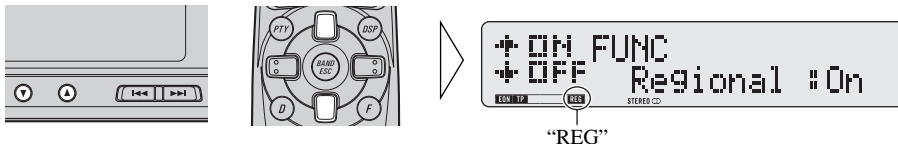
Note:

- Regional programming and regional networks are organized differently depending on the country (i.e., they may change according to the hour, state or broadcast area).
- The preset number may disappear on the display if the tuner tunes in a regional station which differs from the originally set station.

Activating the Regional Function

The Regional function can be turned ON independently for each FM band.

- Select the Regional mode (Regional) in the Function Menu.
- Activate or deactivate Regional while in an FM band.



To cancel the Function Menu, press the BAND button.

TA Function

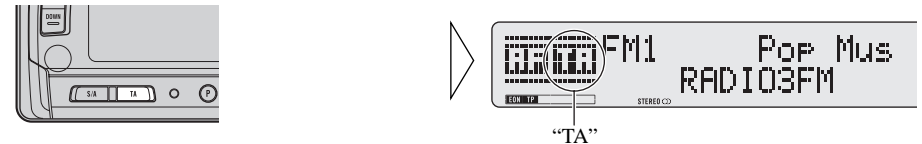
The TA (Traffic Announcement standby) function lets you receive traffic announcements automatically, no matter what source (tuner, built-in CD player or multi-CD player) you are listening to. The TA function can be activated for either a TP station (a station that broadcasts traffic information) or an EON TP station (a station carrying information which cross-references TP stations).

Activating/Deactivating the TA Function

1. Tune in a TP or EON TP station.

The "TP" indicator lights when the tuner is tuned to a TP station, and both the "EON" and "TP" indicators light when it is tuned to an EON TP station.

2. Activate the TA function.



The "TA" indicator lights, indicating that the tuner is waiting for traffic announcements.

Repeat the preceding operation when no traffic announcement is being received to deactivate the TA function.

Note:

- You can also switch the TA Function ON/OFF in the Function Menu.
- The system switches back to the original source following traffic announcement reception.
- The TA function can be activated from the built-in CD player or multi-CD player mode if the tuner was last set to the FM band but not if it was last set to the MW/LW band.
- If the tuner was last set to FM, turning on the TA function lets you operate other tuning functions while listening to a CD.
- Only TP or EON TP stations are tuned in during the Seek Tuning mode when the "TA" indicator is ON.
- Only TP or EON TP stations are stored by BSM when the "TA" indicator is ON.

Using the RDS Functions

Canceling Traffic Announcements

- **Press the TA button while a traffic announcement is being received to cancel the announcement and return to the original source.**

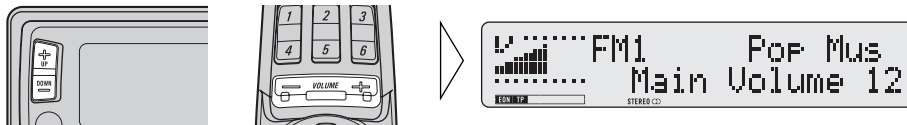


The announcement is canceled but the tuner remains in the TA mode until the TA button is pressed again.

Adjusting the TA Volume

When a traffic announcement begins, the volume adjusts automatically to a preset level to enable you to hear the announcement clearly.

- **Set the volume by adjusting it during reception of a traffic announcement.**



The newly set volume is stored in memory and recalled for subsequent traffic announcements.

TP Alarm Function

About 30 seconds after the “TP” or “EON” indicator is extinguished due to a weak signal, a 5 second beep sounds to remind you to select another TP or EON TP station.

- **If you are listening to the tuner, tune in another TP station or EON TP station.**

In the built-in CD player or multi-CD player mode, the tuner automatically seeks out the TP station with the strongest signal in the current area 10 (or 30)* seconds after “TP” disappears from the display.

*** Time taken before Seek begins.**

TA Function ON	10 seconds
TA, AF Functions ON	30 seconds

PTY Function

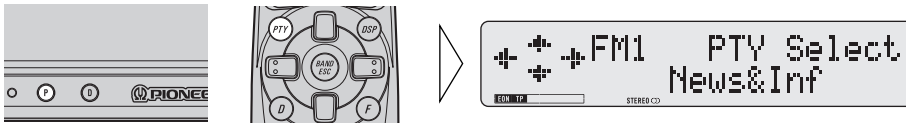
With Wide and Narrow classification of program type, the PTY function provides two ways to select stations by the type of program being broadcast (PTY Search). It also provides automatic tuning to emergency broadcasts (PTY Alarm).

Note:

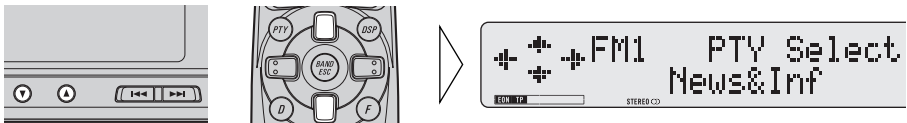
- There's no need to perform PTY Search settings again if they have previously been set. After switching to the PTY Search Setting mode in Step 1, just perform PTY Search in Step 4.

Searching the PTY

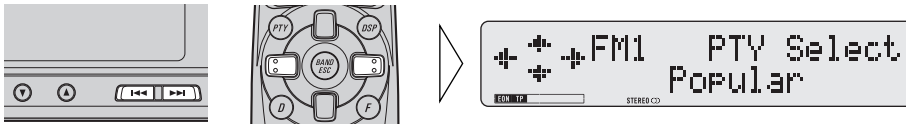
1. **Select the PTY Search Setting mode.**



2. **Select the PTY Search method (Wide, Narrow).**

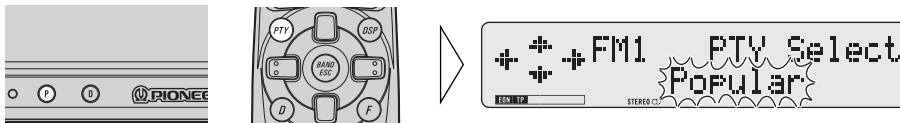


3. **Select one from among the PTY.**



Using the RDS Functions

4. Start PTY Search.



The tuner searches for a station broadcasting the desired PTY.

To cancel the PTY Search Setting mode, hold down the PTY button for 2 seconds or more.

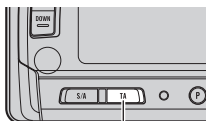
Note:

- If a PTY code of zero is received from a station, "NONE" will be displayed. This indicates that the station has not defined its program contents.
- If the signal is too weak for this product to pick up the PTY code, "NO PTY" will be displayed.
- The program of some stations may differ from that indicated by the transmitted PTY.
- If no station broadcasting the selected programming type is found, "NOT FOUND" is displayed for about 2 seconds, and the tuner returns to the original station.

News Program Interruption Setting

You can switch automatic reception of PTY code news programs ON/OFF. When a received news program ends, reception of the previous program resumes.

- **Set interruption to ON or OFF.**



Hold for 2 seconds



PTY Alarm

PTY Alarm is a special PTY code for announcements regarding emergencies such as natural disasters. When the tuner receives the radio alarm code, "ALARM" appears on the display and the volume adjusts to the TA volume. When the station stops broadcasting the emergency announcement, the system returns to the previous source.

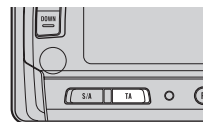


Note:

- The system switches back to the original source following emergency announcement reception.

Canceling Emergency Announcements

- **Press the TA button during emergency announcement reception to cancel the announcement and return to the previous source.**



Using the RDS Functions

PTY List

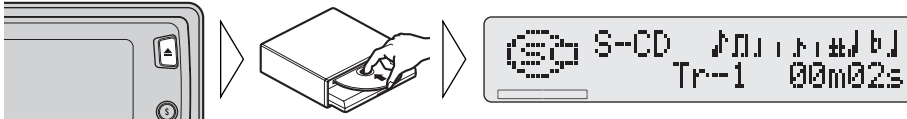
Wide	Narrow	Details
News and Inf	News	News.
	Weather	Weather reports/Meteorological information.
	Affairs	Current affairs.
	Sport	Sports programs.
	Finance	Stock market reports, commerce, trading etc.
Popular	Inf	General information and advice.
	Pop Mus	Popular music.
	Rock Mus	Contemporary modern music.
	Easy Mus	Easy listening music.
	Jazz	Jazz music based programs.
	Oldies	Oldies music, 'Golden age' based programs.
	Folk Mus	Folk music based programs.
	Country	Country music based programs.
	Nat Mus	National music based programs.
	Oth Mus	Other types of music, which can't be categorized.
Classics	L. Class	Light classical music.
	Classic	Serious classical music.
Others	Phone In	Phone in based programs.
	Drama	All radio plays and serials.
	Document	Documentary programs.
	Varied	Light entertainment programs.
	Children	Children's programs.
	Touring	Travel programs, not for announcements about traffic problem.
	Leisure	Programs about hobbies and recreational activities.
	Culture	Programs concerned with any aspect of national or regional culture.
	Religion	Religion affairs programs or services.
	Educate	Educational programs.
	Science	Programs about nature, science and technology.
	Social	Social affairs programs.

Using the Built-in CD Player

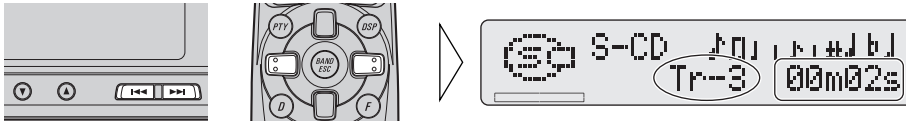
Basic Operation of the Built-in CD Player

The built-in CD player plays one standard 12 cm or 8 cm (single) CD at a time. Do not use an adapter when playing an 8 cm CD.

1. Open the front panel and insert the disc with the label side up.



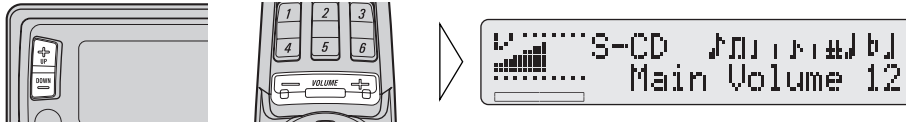
2. Select the desired track (or fast-forward/reverse, per the chart below).



This product's built-in CD player lets you select the Track Search function or Fast-forward/Reverse function by changing the length of time you press the button.

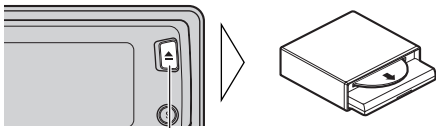
Track Search	0.5 seconds or less
Fast-forward/Reverse	Continue pressing

3. Raise or lower the volume.



Using the Built-in CD Player

4. Remove the disc.



Hold for 2 seconds

Be sure to close the front panel after removing the disc.

Note:

- The CD function can be turned ON/OFF with the disc remaining in this product.
- Discs left partially inserted after ejection may incur damage or fall out.
- If a disc cannot be inserted fully or playback fails, make sure the recorded side is down, hold down the OPEN/EJECT button for 2 seconds or more and check the disc for damage before reinserting it.

Switching the Display (only for CD TEXT Discs)

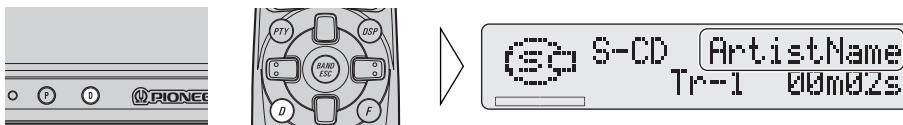
You can use this function when playing a CD TEXT disc.

Note:

- A CD TEXT disc is a CD featuring recorded text information such as Disc Title, Artist Name and Track Title.

Selecting the Display

- Select the desired display.



Each press of the DISPLAY button changes the display in the following order:

Disc Title → Artist Name → Track Title

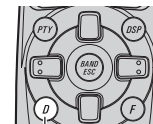
Scrolling the Display

This unit displays the first 10 letters only of Disc Title, Artist Name and Track Title. With text longer than 10 letters, you can see the rest of the text by scrolling.

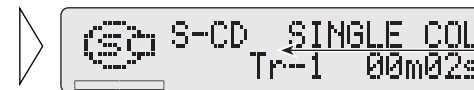
- Scroll the display.



Hold for 2 seconds



Hold for 2 seconds



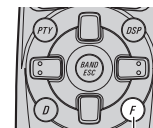
Note:

- You cannot input a disc title with a CD TEXT disc.

Entering the Function Menu

In this menu you can select built-in CD player functions.

- Select the desired mode in the Function Menu.



Each press
changes the Mode ...



Each press of the FUNCTION button selects the mode in the following order:

Repeat → Random → Scan → Pause → COMP and DBE

To cancel the Function Menu, press the BAND button.

Note:

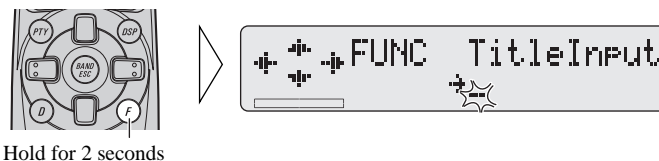
- After entering the Function Menu, if you do not perform an operation within about 30 seconds, the Function Menu is automatically canceled.

Using the Built-in CD Player

Entering the Detailed Setting Menu

In this menu you can perform Disc Title Input and PGM button settings.

- **Enter the Detailed Setting Menu.**



Each press of the FUNCTION button selects the mode in the following order:

TitleInput* — PGM-key

* During play of a CD TEXT disc, you cannot switch to the "TitleInput" mode.

To cancel the Detailed Setting Menu, press the BAND button.

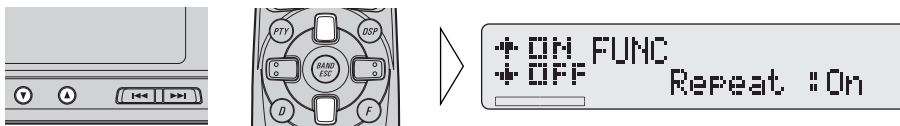
Note:

- You can cancel the Detailed Setting Menu by pressing the FUNCTION button again for 2 seconds or more.

Repeat Play

Repeat Play plays the same track repeatedly.

1. **Select the Repeat mode (Repeat) in the Function Menu.**
2. **Switch the Repeat Play ON or OFF.**



To cancel the Function Menu, press the BAND button.

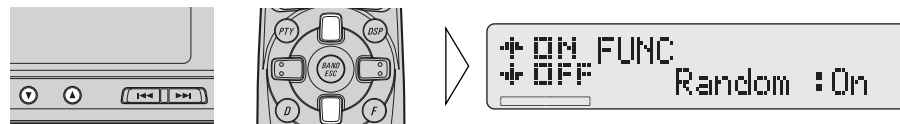
Note:

- If you perform Track Search or Fast-forward/Reverse, Repeat Play is automatically canceled.

Random Play

Random Play plays the tracks on a CD in random order for variety.

1. **Select the Random mode (Random) in the Function Menu.**
2. **Switch the Random Play ON or OFF.**



To cancel the Function Menu, press the BAND button.

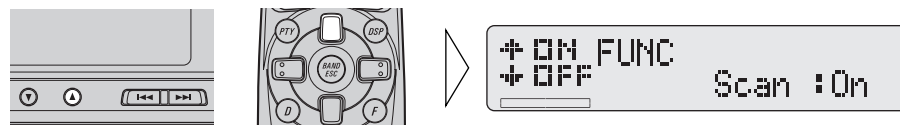
Note:

- Since playback is random, the same track may be repeated consecutively.

Scan Play

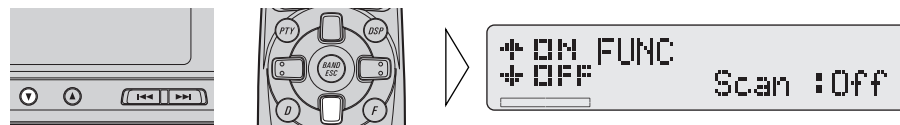
Scan Play plays the first 10 seconds or so of each track on a CD in succession.

1. **Select the Scan mode (Scan) in the Function Menu.**
2. **Switch the Scan Play ON.**



3. **When you hear the track you are looking for, cancel Scan Play.**

If the Function Menu is automatically canceled at this time, select the Scan mode in the Function Menu once more.



Playback of the current track continues.

To cancel the Function Menu, press the BAND button.

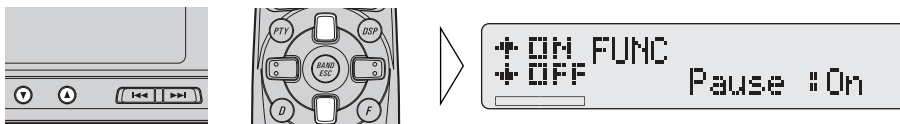
Note:

- Scan Play is canceled automatically after all the tracks on a disc have been scanned.

Using the Built-in CD Player

Pause

1. Select the Pause mode (Pause) in the Function Menu.
2. Stop playback temporarily or restart the system.



To cancel the Function Menu, press the BAND button.

CD Sound Quality Adjustment

COMP (Compression) and DBE (Dynamic Bass Emphasis) functions are available to adjust the sound quality of your multi-CD player. Each can be adjusted in two levels, but they cannot be used together.

● COMP

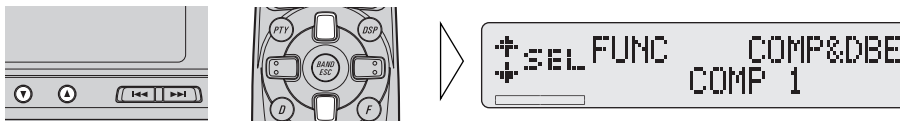
The COMP (Compression) function eliminates distortion caused by an imbalance between loud and subdued sounds at higher volumes.

● DBE

DBE (Dynamic Bass Emphasis) boosts bass level to give a fuller sound.

COMP/DBE ON/OFF Switching

1. Select the COMP/DBE switching mode (COMP and DBE) in the Function Menu.
2. Select the desired mode in the following order:



COMP OFF → COMP 1 → COMP 2 → COMP OFF → DBE 1 → DBE 2

To cancel the Function Menu, press the BAND button.

Disc Title Input

The built-in CD player's Disc Title Input function permits entry of up to 100 disc titles comprising up to 10 characters when one or more multi-CD players is installed.

Note:

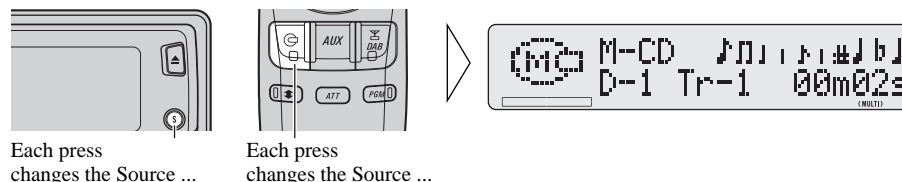
- During "CD TEXT" reproduction, you cannot switch to this mode.

Using Multi-CD Players

This product can control one or more multi-CD players. (There are some types of Multi-CD players such as the "CDX-P630S" which enable connection of a single unit only.)

Basic Operation of Multi-CD Players

1. Select the multi-CD player source.



Each press
changes the Source ...

Each press
changes the Source ...

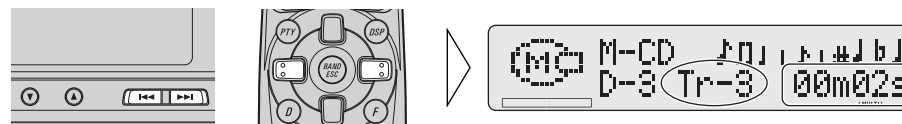
Note:

- The multi-CD player may perform a preparatory operation, such as verifying the presence of a disc or reading disc information, when the power is turned ON or a new disc is selected for playback. "READY" is displayed.
- If the multi-CD player cannot operate properly, an error message such as "ERROR-14" is displayed. Refer to the multi-CD player owner's manual.
- If there are no discs in the multi-CD player magazine, "NO DISC" is displayed.

2. Select the desired disc.



3. Select the desired track (or fast-forward/reverse, per the chart below).

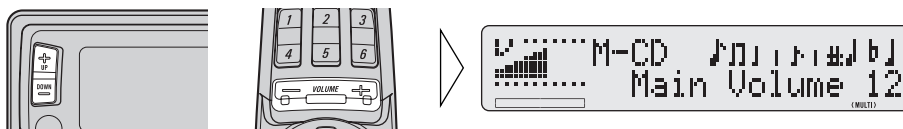


This product lets you select the track search function or fast-forward/reverse function by changing the length of time you press the button.

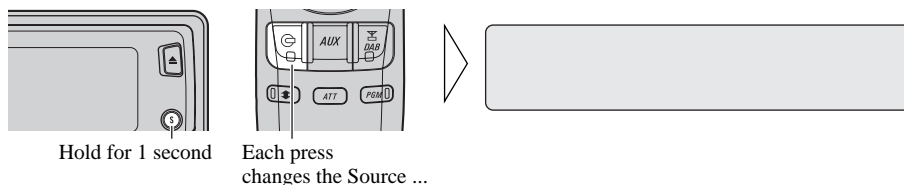
Track search	0.5 seconds or less
Fast-forward/Reverse	Continue pressing

Using Multi-CD Players

4. Raise or lower the volume.



5. Turn the source OFF.



Playing Discs on a 50-Disc Type Multi-CD Player

When a magazine is loaded into a 50-Disc type multi-CD player, information on all the discs in the magazine is read.

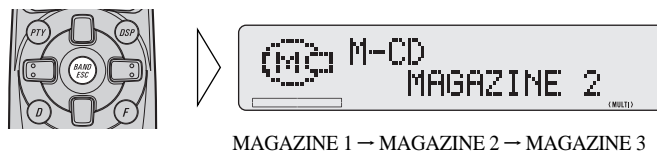
If you start playing a disc on a 50-Disc type multi-CD player before reading of information on all discs has been completed, reading of information stops part way through. This will prevent you from using a number of functions. (If you try and use these functions, “NOT READY” is displayed.)

If this happens, reading of information begins again when you switch to a component other than 50-Disc type multi-CD player.

Switching the Multi-CD Player

It is possible to connect up to three multi-CD players by means of a multiple installation adapter. When two or more multi-CD players are installed, their priorities must be specified. Follow the multi-CD player instructions carefully, and set the address switches properly.

- Select the multi-CD player you want to use.



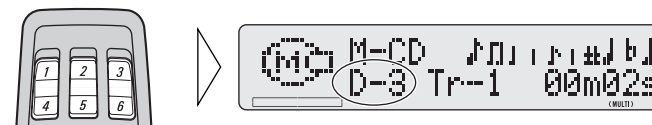
Disc Number Search

Disc Number Search (for 6-Disc 12 -Disc types)

You can select discs directly with the 1–6 buttons. Just press the number corresponding to the disc you want to listen to.

Note:

- When a 12-Disc Multi-CD Player is connected and you want to select disc 7 to 12, press the 1–6 buttons for 2 seconds or longer.
- Select the desired disc. (e.g. Press button 3.)



Disc Number Rough Search (for 50-Disc type only)

This handy function lets you select discs loaded in a 50-Disc Multi-CD Player using the 1–5 buttons. The 50 discs are divided into five blocks, with each of the 1–5 buttons assigned to a block.

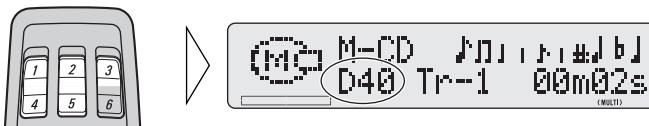
For example, if you press button 1, discs 10 through 19 are searched in order, and then the disc with the lowest disc number is selected.

Note:

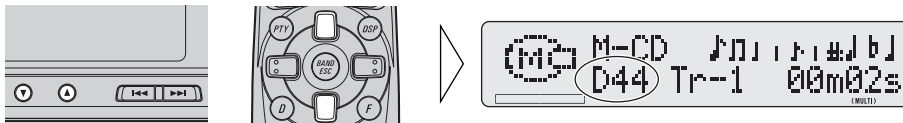
- Pressing button 5 lets you select the 50th disc only.
- Button 6 does not operate.
- Rough search of discs 1 to 9 is not possible. Use the ▲/▼ buttons to select a desired disc.
- “NOW LOADING” will be displayed in the following cases:
 - * If the disc in the extra tray is selected.
 - * If the disc is moved from the extra tray to the magazine.
 (Refer to the 50-Disc type multi-CD player’s owner’s manual.)

Using Multi-CD Players

1. Press the appropriate button from 1–5 to select the block containing the desired disc. (e.g. Press button 4.)



2. Select the desired disc.



Entering the Function Menu

In this menu you can select Multi-CD Player functions.

- Select the desired mode in the Function Menu.



Each press
changes the Mode ...

Each press of the FUNCTION button selects the mode in the following order:

Repeat → ListSearch → ABC-Search* → Random → Scan → ITS-Play → Music Group* → Frequent* → Pause → COMP and DBE

* ABC-Search, Music Group and Frequent are 50-Disc type multi-CD player functions. You cannot switch to these modes when using 6-Disc and 12-Disc type multi-CD players.

To cancel the Function Menu, press the BAND button.

Note:

- With multi-CD players that do not feature COMP (Compression) and DBE (Dynamic Bass Emphasis) functions, “NO COMP” is displayed if you switch to the COMP mode.
- After entering the Function Menu, if you do not perform an operation within about 30 seconds, the Function Menu is automatically canceled.

Entering the Detailed Setting Menu

In this menu you can perform Disc Title Input, ITS Program, Music Group Input and PGM button settings.

- Enter the Detailed Setting Menu.



Hold for 2 seconds

Each press of the FUNCTION button selects the mode in the following order:

TitleInput → ITS → MG Input* → PGM-key

* MG Input is a 50-Disc type multi-CD player function. You cannot switch to this mode when using 6-Disc and 12-Disc type multi-CD players.

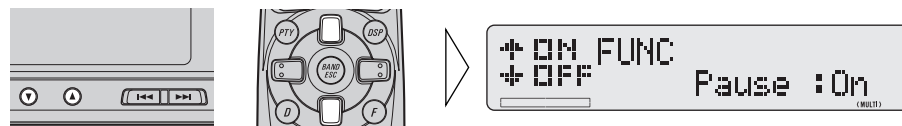
To cancel the Detailed Setting Menu, press the BAND button.

Note:

- You can cancel the Detailed Setting Menu by pressing the FUNCTION button again for 2 seconds or more.

Pause

1. Select the Pause mode (Pause) in the Function Menu.
2. Stop playback temporarily or restart the system.



To cancel the Function Menu, press the BAND button.

Using Multi-CD Players

CD Sound Quality Adjustment

COMP (Compression) and DBE (Dynamic Bass Emphasis) functions are available to adjust the sound quality of your multi-CD player. Each can be adjusted in two levels, but they cannot be used together. COMP and DBE can also be used with another multi-CD player which is equipped with these functions. If it is not so equipped, “NO COMP” is displayed when COMP/DBE switching is attempted.

● COMP

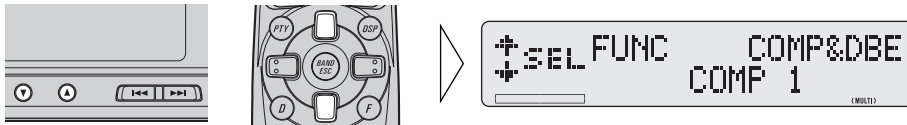
The COMP (Compression) function eliminates distortions caused by an imbalance between loud and subdued sounds at higher volumes.

● DBE

DBE (Dynamic Bass Emphasis) boosts bass levels to give fuller sounds.

COMP/DBE ON/OFF Switching

- 1. Select the COMP/DBE switching mode (COMP and DBE) in the Function Menu.
- 2. Select the desired mode in the following order:

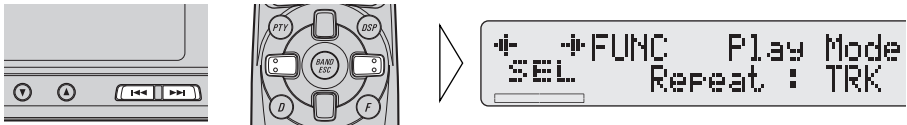


COMP OFF → COMP 1 → COMP 2 → COMP OFF → DBE 1 → DBE 2
To cancel the Function Menu, press the BAND button.

Multi-CD Player Repeat Modes

Multi-CD players offer four repeat modes: One-track Repeat, Disc Repeat, Multi-CD player Repeat and All Repeat. Multi-CD player Repeat is the default mode (normal play) when one or more multi-CD players is installed.

- 1. Select the Repeat Selecting mode (Repeat) in the Function Menu.
- 2. Select the desired repeat mode in the following order:



Multi-CD player Repeat (“MULTI” indicator lights) → ALL Repeat (Nothing) → One-track Repeat (“Repeat” is displayed) → Disc Repeat (“Repeat” is displayed and “DISC” indicator lights)

To cancel the Function Menu, press the BAND button.

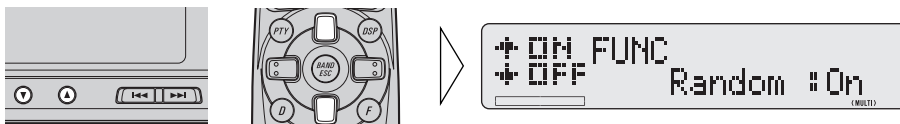
Note:
• All Repeat is available only when two or more multi-CD players are installed.

● Multi-CD Player Repeat Modes

Mode	Operation
One-track Repeat	Plays current track repeatedly. <ul style="list-style-type: none">• When Track Search or fast forward/reverse is performed, the mode returns to the Disc Repeat mode.• When a different disc or multi-CD player is selected, the mode switches to the Multi-CD player Repeat mode.
Disc Repeat	Plays current disc repeatedly. <ul style="list-style-type: none">• When a different disc or multi-CD player is selected, the mode switches to the Multi-CD player Repeat mode.
Multi-CD player Repeat (normal play)	Plays all discs loaded in the multi-CD player magazine repeatedly in order, starting with the first disc.
All Repeat	Plays all discs in the magazines of all multi-CD players in order.

Multi-CD Player Random Play

1. Select the Random mode (Random) in the Function Menu.
2. Switch the Random Play ON or OFF.



When Multi-CD Player Random Play is ON, you can combine it with Repeat Mode to operate as shown below. Switching the Repeat Mode switches Random Play OFF.

To cancel the Function Menu, press the BAND button.

Note:

- Since playback is random, the same track may be repeated consecutively.

Multi-CD Player Random Play Options

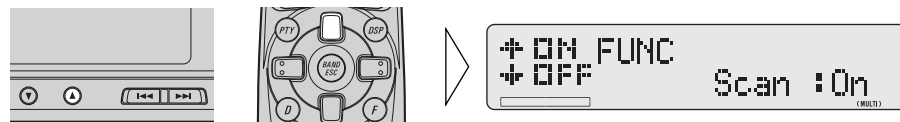
Mode	Operation
One-track Repeat	The mode returns to the Disc Repeat mode, and all tracks on the current disc are played randomly.
Disc Repeat "Random" + "DISC"	All tracks on the current disc are played randomly.
Multi-CD player Repeat "Random" + "MULTI"	All tracks on the discs in the multi-CD player magazine are played randomly.
All Repeat "Random"	All tracks on the discs in all the multi-CD players are played randomly.

Multi-CD Player Scan Play

When one or more multi-CD players are installed, the first 10 seconds or so of each track on a disc are scanned in the One-track Repeat and Disc Repeat modes and the first tracks of each disc in the multi-CD player Repeat and All Repeat modes.

1. Select the Scan mode (Scan) in the Function Menu.

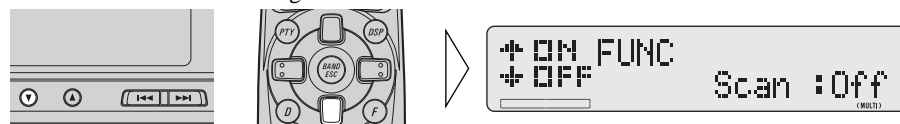
2. Switch the Scan Play ON.



When multi-CD player Scan Play is switched ON and combined with the Repeat Mode, it operates as shown in the following chart. If the Repeat Mode is switched, Scan Play switches OFF.

3. When you hear the track you are looking for, cancel Scan Play.

If the Function Menu has been canceled automatically, select the Scan mode in the Function Menu again.



Playback of the current track or disc will continue.

To cancel the Function Menu, press the BAND button.

Note:

- Scan Play is canceled automatically after all the tracks or discs have been scanned.

Multi-CD Player Scan Play Options

Mode	Operation
One-track Repeat	The mode returns to the Disc Repeat mode, and all tracks on the current disc are scanned.
Disc Repeat "Scan" + "DISC"	All tracks on the current disc are scanned.
Multi-CD player Repeat "Scan" + "MULTI"	The first tracks of all the discs in the multi-CD player magazine are scanned.
All Repeat "Scan"	The first tracks of all the discs in the magazines of all the installed multi-CDs are scanned.

ITS (Instant Track Selection)

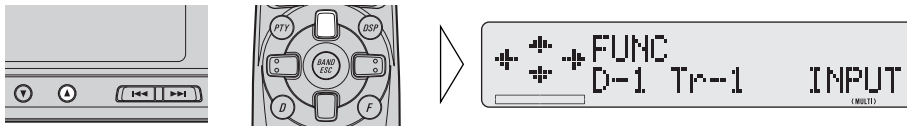
The ITS function allows you to search for the track you wish to play when one or more multi-CD players are installed. You can use ITS to program automatic playback of up to 24 tracks per disc from up to 100 discs. (You can store ITS program and Disc Title data for up to 100 discs in memory. With a 50-Disc type multi-CD player, you can also store Music Group data.)

Using Multi-CD Players

ITS Programming

ITS programming can be conducted in any multi-CD player playback mode except ITS playback.

1. Play the track you wish to program.
2. Select the ITS Programming mode (ITS) in the Detailed Setting Menu.
3. Program the desired track.



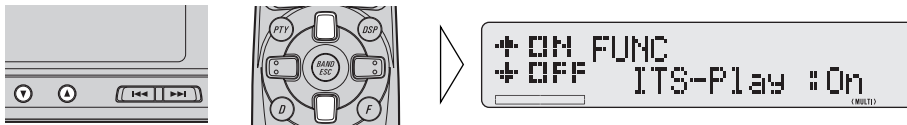
To cancel the Detailed Setting Menu, press the BAND button.

- Note:**
- After 100 discs have been programmed, data for a new disc will overwrite the data for the disc that has not been played back for the longest time.

ITS Playback

ITS playback can be performed in any repeat mode.

1. Select the ITS Playback mode (ITS-Play) in the Function Menu.
2. Switch the ITS Playback ON or OFF.



When ITS Play is ON, you can combine it with Repeat Mode to operate as shown below. If you change Repeat Mode into One-track Repeat, ITS Play will be turned OFF.

The ITS programmed tracks are played back in order from first to last.

To cancel the Function Menu, press the BAND button.

- Note:**
- If no track in the current range is programmed for ITS playback, "ITS EMPTY" is displayed.

Multi-CD Player ITS Play

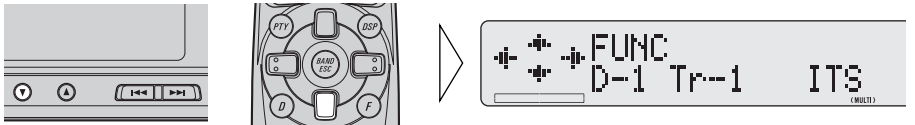
Mode	Operation
One-track Repeat	The mode returns to the Disc Repeat mode and all programmed tracks on the current disc are played.
Disc Repeat "ITS" + "DISC"	All programmed tracks on the current disc are played.
Multi-CD player Repeat "ITS" + "MULTI"	All programmed tracks on the discs in the multi-CD player magazine are played back. <ul style="list-style-type: none">• If there are no programmed tracks on the current disc, ITS advances to the next disc.
All Repeat "ITS"	The programmed tracks on all the discs in the magazines of all the installed multi-CD are played back. <ul style="list-style-type: none">• If there are no programmed tracks on the current disc (or multi-CD player), ITS advances to the next disc (or multi-CD player).

Erasing ITS Programs

ITS programs for up to 100 discs are stored permanently until you erase them.

● Erase a Track Program

1. Select the track you wish to erase, during ITS playback.
2. Select the ITS Programming mode (ITS) in the Detailed Setting Menu.
3. Erase the track program.

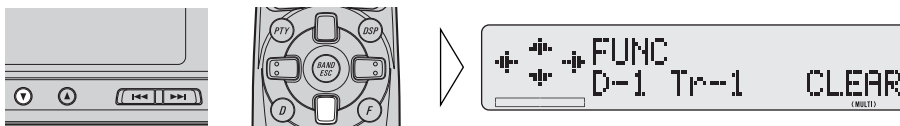


ITS is canceled and playback of the next ITS-programmed track begins. If there are no more programmed tracks in the current range, "ITS EMPTY" is displayed and normal playback resumes.

To cancel the Detailed Setting Menu, press the BAND button.

● Erase a Disc Program

1. Select the disc you wish to erase, while the disc is playing.
2. Select the ITS Programming mode (ITS) in the Detailed Setting Menu.
3. Erase the disc program.

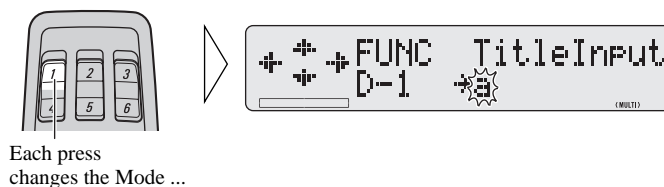


To cancel the Detailed Setting Menu, press the BAND button.

Disc Title Input

You can input Titles up to 10 characters long for up to 100 discs. Using this function lets you easily search for and select a desired disc for play. (You can store ITS program and Disc Title data for up to 100 discs in memory. With a 50-Disc type multi-CD player, you can also store Music Group data.)

1. Play the disc you wish to input the disc title.
2. Select the Disc Title Input mode (TitleInput) in the Detailed Setting Menu.
3. Switch the Alphabet modes.



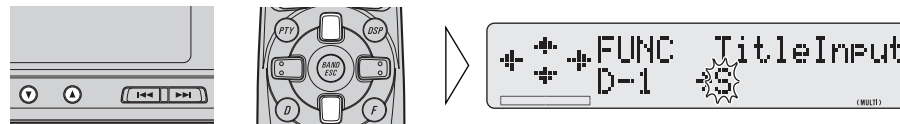
Each press of the button 1 changes the mode in the following order:

Alphabet (Upper case), Numbers and Symbols → Alphabet (Lower case)
→ European letters, such as those with accents (e.g. á, à, ä, ç)

Note:

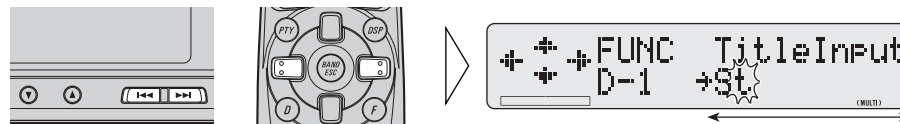
- You can switch to the Numbers and Symbol mode by pressing button 2.

4. Select a letter, number or symbol.

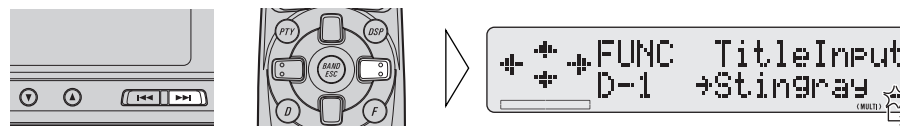


To insert a space, select the flashing cursor.

5. Reverse or advance box by box.



6. When the title is completed, store it in memory to make the flashing cursor fade out.



To cancel the Detailed Setting Menu, press the BAND button.

Note:

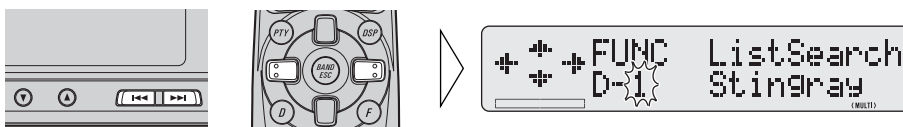
- Titles remain in memory, even after the disc has been removed from the magazine, and are recalled when the disc is reinserted.
- After the titles for 100 discs have been entered, data for a new disc will overwrite the data for the disc that has not been played back for the longest time.

Using Multi-CD Players

Selecting Discs by Disc Title List

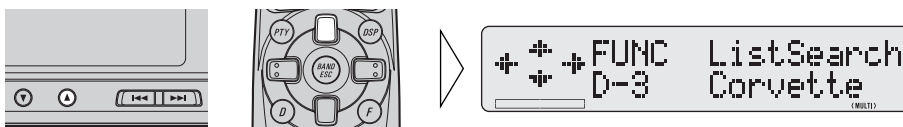
Follow the procedures below to play a disc for which you have input the title in a multi-CD player:

1. Select the Disc Title List mode (ListSearch) in the Function Menu.
2. Each time you press the ◀ or ▶ button, titles in the current disc magazine are displayed in the order of their disc numbers.



Nothing is displayed for discs whose titles have not been input.

3. Select the desired disc for playback by pressing the ▲ button when its title is displayed.

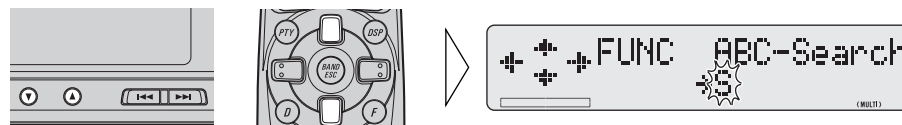


To cancel the Function Menu, press the BAND button.

Selecting Discs Using “ABC” Disc Title Search (for 50-Disc type only)

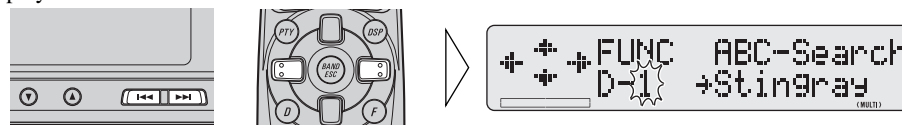
You can search for and select a disc by searching for the first letter of the desired disc’s Disc Title.

1. Select the “ABC” Disc Title Search mode (ABC-Search) in the Function Menu.
2. Select the desired first letter.



3. Select the desired disc title.

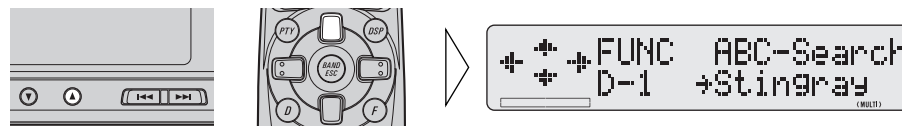
Each time you press the button, titles with the selected first letter are displayed in the order of their disc numbers.



Note:

- When there are no disc titles starting with the letter you selected, “NO TITLE” is displayed.
- Press the ▼ button to return to selection of the first letter.

4. Select the desired disc for playback by pressing the ▲ button when its title is displayed.



To cancel the Function Menu, press the BAND button.

Music Group Play (for 50-Disc type only)

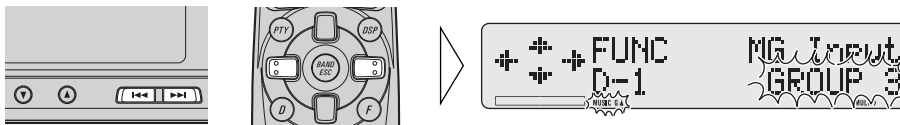
The Music Group Play function classifies discs loaded in a 50-Disc type multi-CD player into 10 groups, and plays only discs from the same group. Up to 100 discs can be classified into groups. (Music Group, ITS program and Disc Title data for up to 100 discs can be stored in memory.)

Note:

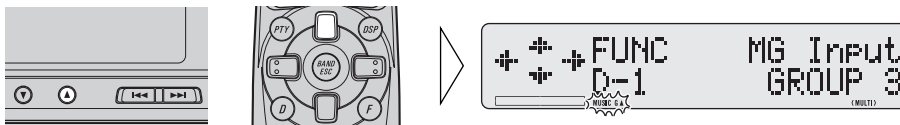
- Music Group types are as follows:
ROCK 1, ROCK 2, POP, JAZZ, INSTRMNT, CLASSIC, GROUP 1, GROUP 2, GROUP 3, GROUP 4

Classifying a Disc into a Group

1. Play the disc you want to classify into a group.
2. Select the Music Group Input mode (MG Input) in the Detailed Setting Menu.
3. Select the desired group.



4. Register the disc in the selected group.



To cancel the Detailed Setting Menu, press the BAND button.

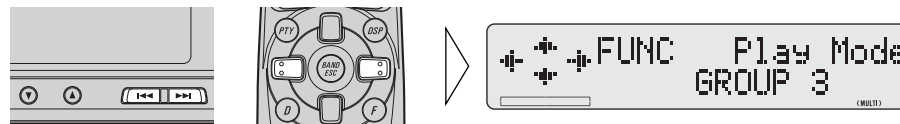
Note:

- Even if you remove a disc from a magazine after you have registered it in a group, its assigned group is stored in memory. This means that when you reinsert the disc in the magazine, there's no need to reassign it to the group.
- After assigning 100 discs to groups, data input for a new disc overwrites data for the disc that has been played least recently.

Music Group Playback

Only discs in the same group are played.

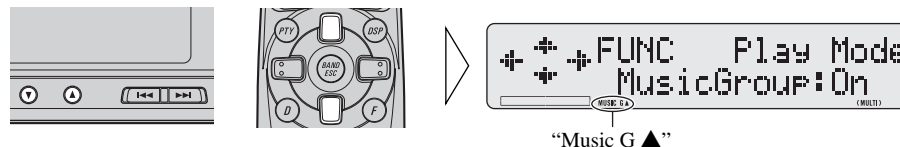
1. Select the Music Group Playback mode (Music Group) in the Function Menu.
2. Select the desired Music Group.



Note:

- At first, the group of the disc playing is displayed. If the disc playing does not belong to a group, "NO GROUP" is displayed.

3. Switch music group playback ON or OFF.



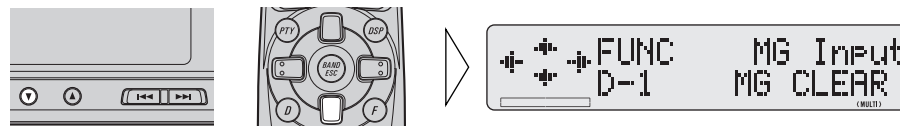
To cancel the Function Menu, press the BAND button.

Note:

- If there are no discs registered in the selected group, "MG EMPTY" is displayed.

Deleting a Disc from a Music Group

1. Play the disc you want to delete from a group.
2. Select the Music Group Input mode (MG Input) in the Detailed Setting Menu.
3. Delete the disc from the group.



To cancel the Detailed Setting Menu, press the BAND button.

Note:

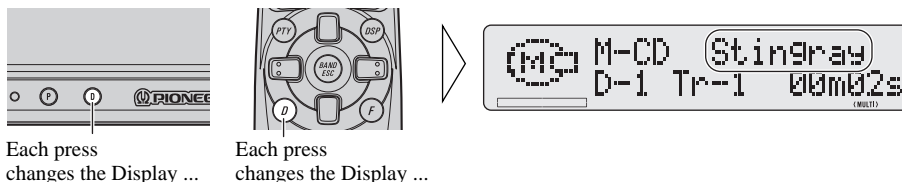
- During music group playback, if you have deleted the disc currently playing from the group, the next disc in the group is played. If all discs in the same group have been deleted, "NO GROUP" is displayed.

Using Multi-CD Players

Displaying Disc Title or Music Group (for 50-Disc type only)

You can display the Disc Title or Music Group of the disc playing.

- **Select the desired display.**



Each press of the DISPLAY button changes the display in the following order:

Disc Title → Music Group

Note:

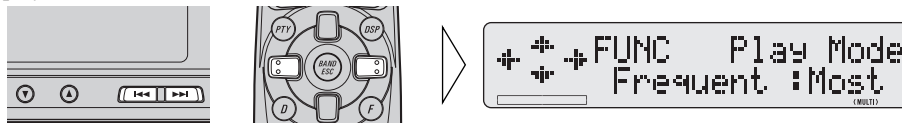
- When playing a disc that does not have a title, if you switch to Disc Title display, "No Title" flashes for 4 seconds, and then the display returns to the previous indications.
- When playing a disc that doesn't belong to a group, if you select Music Group display, "NO GROUP" flashes for 4 seconds, and then the display returns to the previous indications.

Frequency Play (for 50-Disc type only)

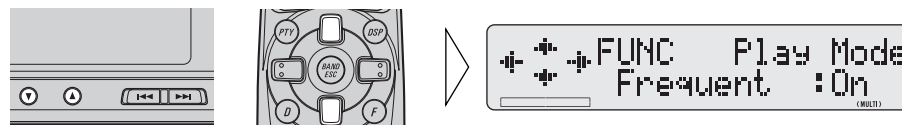
The Frequency Play Function plays discs in order, from the most frequently played disc to the least frequently played disc, or vice versa.

1. **Select the Frequency Playback mode (Frequent) in the Function Menu.**
2. **Select the desired play order.**

For play of discs in order starting with the most frequently played disc, select "Most". For play of discs in order starting with the least frequently played disc, select "Least".



3. **Switch Frequency playback ON or OFF.**



To cancel the Function Menu, press the BAND button.

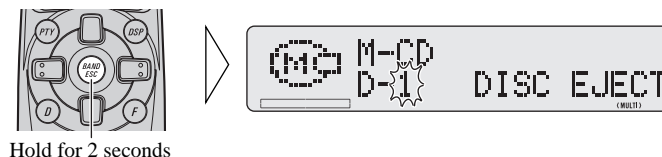
Note:

- During Frequency Playback, pressing the ▲ or ▼ button changes to the previous or next disc in the frequency order.

Ejecting a Single Disc (for 50-Disc type only)

This function lets you eject discs one at a time from a 50-Disc multi-CD player.

1. **Play the disc you want to eject.**
2. **Move the disc to the extra tray.**



3. **Remove the disc from the extra tray.**

(Refer to the 50-Disc type multi-CD player's owner's manual.)

Note:

- This function does not operate if a disc is already loaded in the extra tray.

Specifications

General

Power source 14.4 V DC (10.8 – 15.1 V allowable)
Grounding system Negative type
Max. current consumption 10 A
Dimensions
 (mounting size) 178 (W) × 50 (H) × 155 (D) mm
 (front face) 188 (W) × 58 (H) × 20 (D) mm
Weight 1.8 kg

Amplifier

Maximum power output 40 W × 4
Continuous power output 25 W × 4
 (DIN45324, +B = 14.4 V)
Load impedance 4 Ω (4 – 8 Ω allowable)
Preout output level/output impedance 500 mV/1 kΩ

CD player

System Compact disc audio system
Usable discs Compact disc
Signal format Sampling frequency: 44.1 kHz
 Number of quantization bits: 16; linear
Frequency characteristics 5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio 112 dB (1 kHz) (IEC-A network)
Dynamic range 98 dB (1 kHz)
Number of channel 2 (stereo)

FM tuner

Frequency range 87.5 – 108 MHz
Usable sensitivity 11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity 16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio 70 dB (IEC-A network)
Distortion 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response 30 – 15,000 Hz (±3 dB)
Stereo separation 40 dB (at 65 dBf, 1 kHz)

MW tuner

Frequency range 531 – 1,602 kHz
Usable sensitivity 18 μV (S/N: 20 dB)
Selectivity 50 dB (±9 kHz)

LW tuner

Frequency range 153 – 281 kHz
Usable sensitivity 30 μV (S/N: 20 dB)
Selectivity 50 dB (±9 kHz)

DSP

Equalizer (13 Band Graphic Equalizer)
 Frequency 50, 80, 125, 200, 315, 500, 800,
 1.25 k, 2 k, 3.15 k, 5 k, 8 k, 12.5 k (Hz)
 Level ± 12 dB (2 dB)
Auto Equalizer (STD Mode)
 (Front and Rear and Subwoofer 13 band graphic +
 Rear 2 band parametric)
 Frequency (Front and Rear and Subwoofer)
 50, 80, 125, 200, 315, 500, 800,
 1.25 k, 2 k, 3.15 k, 5 k, 8 k, 12.5 k (Hz)
 Frequency (Rear) 100 Hz – 8 kHz (1/3 oct)
 Level +6 — –12 dB (2 dB)
 Q Factor (Rear) 1.2, 3.6
Auto Equalizer (PRO Mode)
 (13 band graphic)
 Frequency 50, 80, 125, 200, 315, 500, 800,
 1.25 k, 2 k, 3.15 k, 5 k, 8 k, 12.5 k (Hz)
 Level +6 — –12 dB (2 dB)
Network (STD Mode)
 Front/Rear HPF frequency: 50, 80, 125, 200 (Hz)
 Slope: 0, –6, –12 dB/oct
 Level: 0 — –24 dB (1 dB)
Subwoofer (Mono)
 LPF frequency: 50, 63, 80, 100,
 125, 160, 200 (Hz)
 Slope: –6, –12, –18 dB/oct
 Level: +6 — –24 dB (1 dB)
 Phase: Normal/Reverse

Network (PRO Mode)
 High HPF frequency: 2 k, 2.5 k, 3.15 k, 4 k, 5 k,
 6.3 k, 8 k, 10 k, 12.5 k (Hz)
 Slope: –6, –12, –18, –24 dB/oct
 Level: +6 — –24 dB (1 dB)
 Phase: Normal/Reverse
 Mid LPF frequency: 2 k, 2.5 k, 3.15 k, 4 k, 5 k,
 6.3 k, 8 k, 10 k, 12.5 k (Hz)
 HPF frequency: 40, 50, 63, 80, 100, 125,
 160, 200, 250 (Hz)
 Slope: 0, –6, –12, –18, –24 dB/oct
 Level: 0 — –24 dB (1 dB)
 Phase: Normal/Reverse
 Low (Stereo/Mono)
 LPF frequency: 40, 50, 63, 80, 100,
 125, 160, 200, 250 (Hz)
 Slope: –12, –18, –24, –30, –36 dB/oct
 Level: +6 — –24 dB (1 dB)
 Phase: Normal/Reverse
 Time Alignment 0 — 400 cm (2 cm)
 0 — 160 inch (0.5 inch)

Note:

- Specifications and the design are subject to possible modification without notice due to improvements.